



On April 22nd, 2021, the Maiella National Park obtained the recognition of UNESCO World Geopark, entering the Global Geopark Network (GGN), a result that certifies its value not only geological but, at the same time, of biodiversity, traditions, historical-artistic, archaeological and cultural heritage.

The UNESCO World Geoparks operate to increase knowledge and awareness of the role and value of geodiversity and to promote the best practices of conservation, education, dissemination and tourist use of the geological heritage: through a holistic approach, a world UNESCO Geopark aims to develop and celebrate the links between the geological heritage and all other aspects of the natural, cultural and intangible heritage of the area it encloses.

The Geopark is not just about the geology of places: it is about the people who live and work within it, local communities and their activities, sustainable tourism and the support it can provide to the microeconomics of the territory. The Maiella UGGp, with its 39 municipalities, is an area in which the presence of men has been continuously witnessed for almost a million years: despite the harshness of the mountain environment, those who have inhabited and still live in these places, has learned to coexist with the natural environment, along a history that embraces prehistoric settlements, hermitism, pastoralism, livestock farming, agriculture, craftsmanship, modern entrepreneurship. The perspective of preservation of geodiversity, developed and preserved over time, now makes it possible to manage the territory of the Geopark according to a holistic approach to the theme of nature conservation.



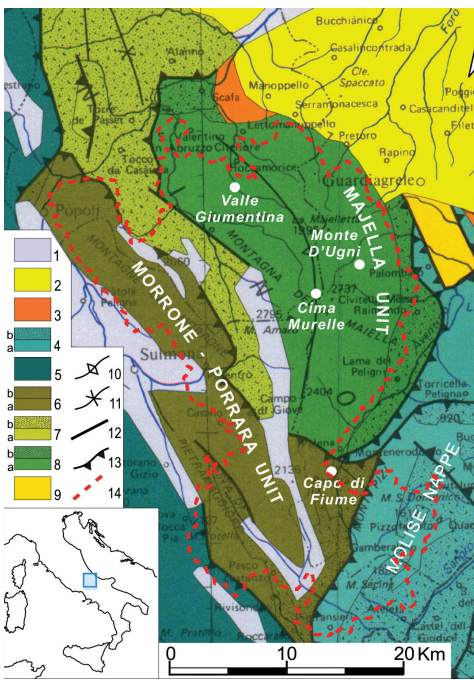
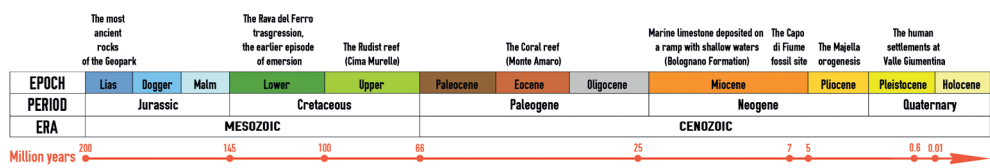
Shapes of the LANDSCAPE



ranta and Orta Valleys. In the area south of the Park, Monte Porrara rises to the side of the Quarto di Santa Chiara, a rooftop-karst plateau located at 1250 m, part of the Highlands of Abruzzo. To the south east, the morphology changes markedly: the rocky and sharp peaks of the Monti Pizzi, together with Monte Secine, stand out among the gentler slopes made up of clayey soils crossed by a dense network of streams. Karst also helps to shape the landscape: more than 100 caves are recorded in the whole Maiella UGGp area, including the Cavallone Cave, with abundant stalactites and stalagmites, and the Nera Cave, with a typical concretion known as "moon milk", soft to the touch, to the genesis of which the action of bacteria present in the cave environment contributes. The widespread underground circulation makes the park seemingly arid at high altitude, because the rain and meltwater from the snow easily infiltrate the subsoil to gush into the abundant springs in the valley. Epigean forms of karst are the sinkholes and the karren (grooves and forms of corrosion). Some of these can also be observed in the gypsum outcropping near San Valentino in Abruzzo Citeriore.

The GEOLOGY of the Geopark

The territory of the Geopark consists mainly of reliefs composed of carbonate rocks, with an altitude ranging from about 130m a.s.l. at the maximum altitude of 2793 m a.s.l. with the top of Monte Amaro, the second highest peak in the Apennines. Of the approximately 60 peaks of the Maiella, half exceed 2000 m a.s.l., (M. Acquaviva 2737 m, M. Focalone 2676 m, Pesco Falcone 2546 m and Cima delle Murelle 2598 m). The mountains of the park originated about 140 million years ago, when the rocks that constitute them were forming on the bottom of an ancient tropical ocean, called Tethys. For millions of years, a time almost inconceivable for the human mind, thousands of meters of sediment accumulated on the seabed, which "only" five million years ago saw the light of the sun, emerging from the water due to great forces of the Planet. Today only the Mediterranean Sea remains of that ancient ocean, which represents a collision area between the African plate and the Eurasian plate, and from whose collision the mountains that we admire today originated: within the rock layers, the remains and signs of that distant tropical life, testified by the fossil remains of molluscs, corals, gastropods, sharks, dolphins and crocodiles.



Simplified geological and structural map of the Majella and surrounding areas showing the areal distribution of the recognized tectonic units. 1: continental deposits (middle Pleistocene p.p.-Holocene); 2: marine and subordinate continental deposits post-dating the nappe transport (lower Pleistocene-middle Pleistocene p.p.); 3: marine and paralic thrust-top deposits (Pliocene); 4: Molise Nappe (b: uppermost Tortonian-Messinian p.p. siliciclastic flysch deposits, a: Jurassic-Tortonian p.p. basinal carbonates); 5: Gran Sasso-Genzana Unit; 6: Morrone-Porrara Unit (b: Messinian p.p. siliciclastic flysch deposits, a: Jurassic-Messinian p.p. platform-to-basin carbonates); 7: Queglia Unit (b: Messinian p.p.-lower Pliocene p.p. siliciclastic flysch deposits, a: upper Cretaceous-Messinian p.p. platform-to-basin carbonates); 8: Majella Unit (b: lower Pliocene siliciclastic flysch deposits, a: lower Cretaceous-Messinian platform-to-basin carbonates and evaporites); 9: Casoli-Bomba Unit (Pliocene hemipelagic clays); 10: anticline axis; 11: syncline axis; 12: normal faults; 13: low-angle thrusts; 14: boundary of the M.N. Park (Author E. Patacca Scandone in Liberatoscioli et al., Geosciences 2018, 8, 256).



GEOSITES

The 95 geosites recorded in the entire area of the Majella Geopark show the high variability of the geological characteristics of the park, as well as their uniqueness. They have been divided according to the main geological character: strata of a particular time, fossils, landscape shapes, but also archaeology, water and mineral resources. Some, studied by Italian and foreign researchers, have acquired international importance, including: Capo di Fiume Geosite in Palena; the section type of Deontra (Oligo-Miocene); the stratigraphic section of Pennapiadimonte; the Cerratina underwater dune field; the chalky-sulphurous formation of the Colle di Votta quarry; the sources of oil of the Arolo stream; the Sorgenti del Verde and the Gorges of Fara San Martino; the Cavallone Cave; the Palaeolithic site of Valle Giumentina; the Hermitage of Sant'Onofrio and the temple of Ercole Curino; the bitumen mines of Acquafredda; the palaeontological geosite with rudists of Fara San Martino. The presence of 95 geosites (geological sites important for scientific quality, rarity, aesthetic relevance or educational value), of which 22 in total are of international importance, represented the basis for the candidacy for UNESCO Geopark. The Geosite of Palena-Capo di Fiume, subject to archaeological constraints, preserves sediments of a lagoon and marsh environment dating back to about 7 million years ago. The paleobotanical remains within the layers belong to willows, cypresses, cinnamon trees and deciduous plants. In the open spaces lived small mammals, called Prolago, of one of which a well-preserved skeleton was found. The lagoon and the open sea in front were populated by many species of fish, including the round herring, the Nile perch, the cod and the sea bream, molluscs and sea urchins. The paleontological site is part of an integrated system of visits that includes the sources of the Avenite and the Upper Avenite Geopaleontological Museum of Palena, where the mentioned fossil remains are preserved.

GEODIVERSITY

Geodiversity is the recognizable variety in nature of geological elements (rocks, minerals, fossils), of geomorphological environments (with the relative forms and processes) and of the characteristics of the soil. The geological variety of a place is closely linked to its biodiversity, which is influenced by the multiple forms of places, by pedology, by physical and geological processes. Geodiversity is therefore a concept that allows us to look at the natural environment as a single and complex system, in which all the entities present, living and non-living, coexist, influencing and supporting each other.



The geodiversity of the Maiella Geopark is characterized by landscape shapes and elements that make it unique in the Italian geological panorama, for various elements that have contributed to the development of human settlements:

- its complex geology, the result of an evolution lasting 140 million years, with the oldest rocks, formed in ancient tropical seas, and younger rocks, "only" a few million years old, which tell us about the last stages of that long history;
- the forms of the landscape, such as glacial cirques, deep valleys carved by rivers, karst plateaus and caves;
- the numerous geosites, places where there is a particular geological aspect, combined with anthropology, archaeology, natural resources.

Maiella UGGp and MAN

The territory of the Geopark has been lived, inhabited, interpreted since the dawn of humanity, along a history of about 800,000 years: a territory that has always been support, shelter and an opportunity for economic development, despite the difficulty inherent in its harsh morphology, and nevertheless wisely exploited by those who lived there.



Karst erosion, with the formation of numerous niches, has granted shelter to men, since the Palaeolithic. Furthermore, the presence of rivers and ancient lakes has facilitated the permanence of human settlements. Referred to by many as the Holy Mountain, it is the setting for numerous hermitages set in the rock, many of which are still linked to popular and religious traditions and festivals. The agro-pastoral world is the protagonist of these slopes where the huts and dry-stone walls are distinctive elements of the landscape. After a period of abandonment of inland mountain areas, linked to industrial development in the valley, agriculture is once again finding a moment of development within the Park territory. On the northern side of the Majella, the agro-pastoral world meets the industrial world: for more than a century, these were the sites of the bitumen mining settlements, known as the Majella Mining Basin. The entrances to the tunnels and mines are many, and develop over a large area, affecting the territory of 6 municipalities. What today we call finds of industrial archaeology (cableways, cables, gears, trolleys and railways) are an integral part of the landscape and tell the life of miners and miners. These characteristics have made it possible to insert one of the Majella mining complexes, that of Acquafredda, in geosite database mentioned above, within the UNESCO candidacy dossier, in order to promote its knowledge, enhancement and protection, so that this part of the naturalistic-anthropological heritage of the Park can be preserved for future generations.



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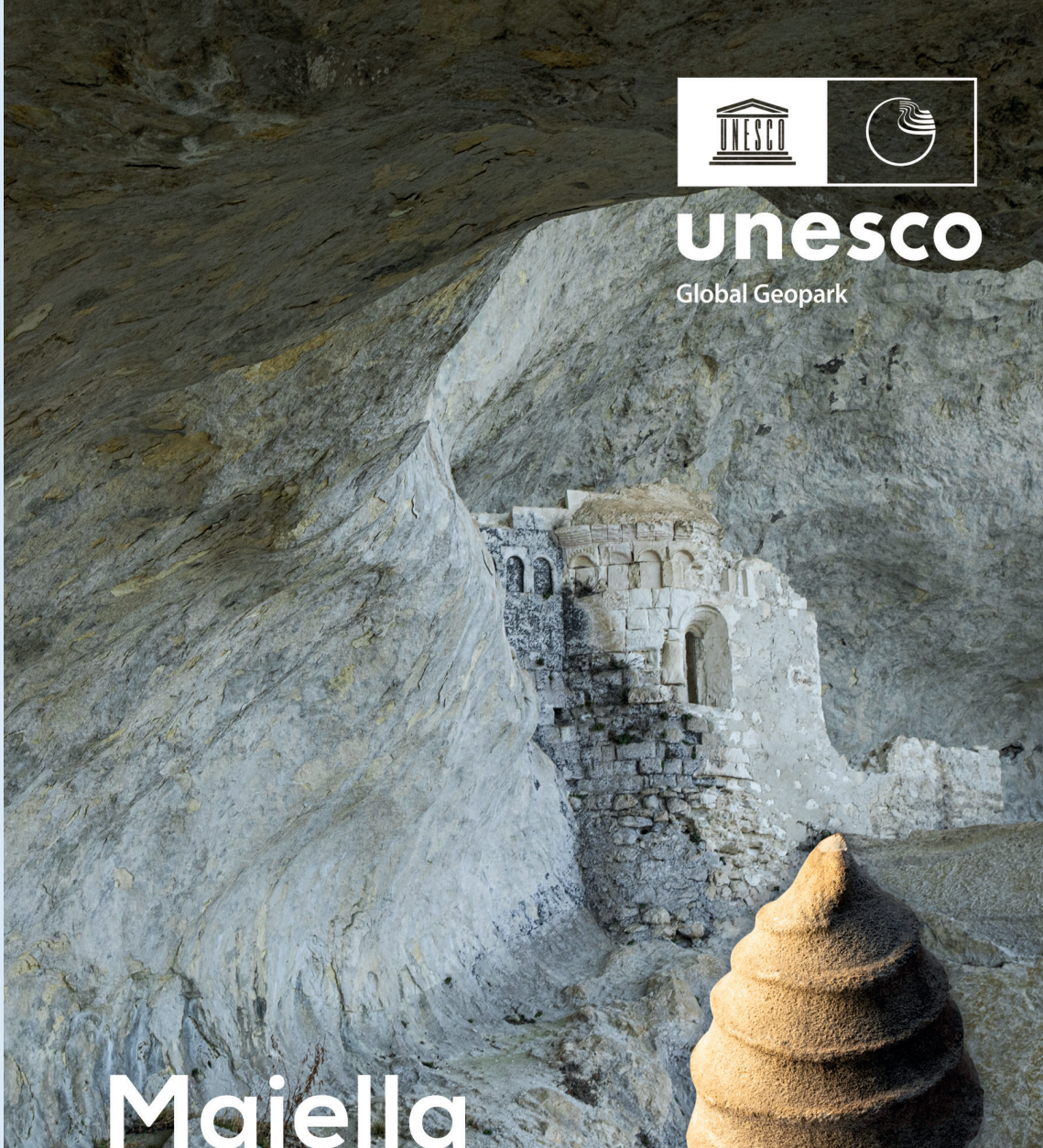
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Maiella Global Geopark



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Global Geopark



Maiella
Global Geopark

A 140-million-years-old long history



BLACK Maiella



ADRIATICAVES projects

The Maiella UGGp was the leader of the Interreg VB "Adriaticaves" project, aimed on the one hand at promoting the sustainable use of the speleological heritage of its territory, and on the other hand at increasing the effectiveness of the conservation of the cave habitat, and in particular of the community habitat 8310 "Caves not yet exploited for tourism". The project involved a partnership between countries bordering the Adriatic Sea (Italy, Croatia, Serbia, Bosnia-Herzegovina, Montenegro and Albania). The Maiella Park is taking part of ADRIATICAVES PLUS which enhance and expand the outcome of the ADRIATICAVES project and will introduce a pilot action to experience the potentiality of digital innovation, particularly by redesigning sites in 3d. These 3D sites will be used as innovative tools to support the valorization of natural and historical sites.

THE CAVALLONE CAVE

(**geosite 44**) is the best-known site of the Geopark cave system: it is the highest open-to-the-public one in the Apennines, at about 1450m a.s.l. in the Taranta Valley, and is about 1300 m length. Accessible via a cable car, the cave is famous in theatrical literature for being the setting for the pastoral tragedy "The daughter of Iorio" written by Gabriele d'Annunzio. Discovered in 1865, it served as a shelter for the citizens of the valley during the Second World War, who took refuge there in the 1943-44 winter to escape the bombing of the small villages of the Aventino Valley.

www.grottedelcavallone.it



THE BLACK CAVE

(**geosite 36**) is one of the most representative karst cavities of the underground geological heritage of the Geopark. The calcitic concretions inside, called "moon milk" are rare and particularly abundant, and are formed thanks to the presence of bacteria. The FaBIT department (UniBo), in addition to the physical parameters (temperature, humidity, carbon dioxide and radon), analyzed the white concretion, mostly made up of water, from a geochemical and microbiological point of view. Thanks to metagenomics, the microbial communities present in calcitic concretions have been studied by sequencing their genome. The 3D reconstruction of Grotta Nera is available on the Maiella National Park's portal.

SENTIERO DEI
MINATORI
LETTOMANOPPELLO

THE MINER'S TRAIL
Municipality of Lettomanoppello (PE)
Difficulty: E Hikers
Length: 3,5 km
Uphill gradient: m 130
Downhill gradient: m 130
ufficio.protocollo@lettomanoppello.eu
349.664 8985

The excursion includes a stretch of the Santa Liberata Mine and the Ponte Mine where the stories of those who sacrificed their young lives in caves in the hope of a better future are told. It is the only mining trail in Abruzzo, and following it is an opportunity to take a trip back in time: a naturalistic, historical and cultural path to discover the secrets of nature and man, geology and industrial archaeology.

THE MAIELLA UGGP MINE BASIN

Abruzzo, with the Maiella basin between 1800 and the first half of 1900, became one of the most important European centres for mining activities for the extraction of asphaltic and bituminous rocks, as well as oil. The list of geosites of the Park also includes the places, geologically and historically belonging to the mining basin included in the territory of six municipalities and ten main sites, such as the bitumen mines of Iconicella in Lettomanoppello (Pe), the Sources of Petrolio in Tocco da Casauria (Pe) and the Acquafredda mines in Roccamorice (Pe).



WHITE Maiella

MAIELLA ROCK ART PROJECT

The Maiella Rock Art Project, sponsored by the Maiella National Park and coordinated by the Université Côte d'Azur (Nice, France) has the main objective of implementing the knowledge on the rock art of the Abruzzo Apennines, in particular in the territory of the Geopark, from which some of the most significant testimonies on post-Palaeolithic rock art of the Apennine Italy come from.

The traditional ARCHITECTURE

The countries of the Geopark are often set like precious stones in the landscape, which has been preserved natural and wild for millennia. The limestone rocks of the mountain, in addition to offering shelter for shepherds and hermits, have influenced the local architecture and the development of activities connected to it. The historic centers of villages such as Guardiagrele, Pescocostanzo, Pennapiedimonte, Pacentro, are made with the Maiella stone, worked by the master stonemasons, who wisely made frames, portals and rose windows. The old town of Fara San Martino (Torrevecchia) is built with limestone from a rustid paleontological geosite. Many of the towns still retain the surrounding walls, within which the simple stroll turns into a journey back in time, due to the presence of Renaissance, Baroque and Neoclassical monuments, as well as popular architecture. In some cases, the houses and shops are made up of basement floors carved into the Maiella stone, expressing the essence of the close relationship fortified over the centuries between nature and man.



The intangible HERITAGE



The geological heritage of the Maiella UGGp intertwines its history and evolution with the history of the man who has always inhabited its cliffs, caves, plateaus and valleys. The so-called "intangible" heritage progresses hand in hand with the enhancement of the entire territory of the Geopark, in its more or less known elements, such as dry-stone walls, local traditions, culture. The popular festivals of the municipalities of the Park are important evidence of a forestry, rural and pastoral culture. In addition, with the joyful atmosphere of the festive season, the rites and practices strongly linked to an ancient spirituality also arrive: the calendar of festivals marks the life of the communities. Among the best known are: The Living Nativity of Rivisondoli, the Feast of S. Antonio Abate, the panicle of San Biagio in Taranta Peligna, the procession of Good Friday and the "run-away Virgin Mary" in Sulmona, the Feast of St. Domenico in Pretoro, the Procession of the "Verginelle" in Rapino, the "Corsa degli Zingari" in Pacentro. The great tradition of Maiella UGGp craftsmanship continues today thanks to the goldsmiths, lace makers, carvers, stonemasons, potters, blacksmiths and weavers who work in the villages of the Park (or the "Presentosa" is a famous jewel of tradition goldsmith of the Park.). Raw materials such as limestone and gypsum have strongly influenced the architecture and the development of the communities' ability to extract and carve stone, as in the manufacturing workshops of Pescocostanzo, San Valentino, Lettomanoppello and Pennapiedimonte. The ancient ceramics survive only in Rapino town, where the production has a popular character, with very bright enamels and colours and with traditional motifs such as the so-called "fioraccio" (typical floral decoration), roses, cockerel, and the so-called "country-like" (country patterns), neighbourhood-like (patterns divided into small areas) and "tablecloth-like" (patterns similar to those of tablecloths) decorations.



HERMITAGES and rupestrian places of worship

Called by many as the Sacred Mountain, the Maiella, is the setting for the paths of the spirit (Cammino di Celestino, Rupestrian Hermitages Path) and numerous hermitages set in the rock, many of these still linked to traditions, popular and religious festivals. The hermitages are integrated into the natural landscape and, thanks to them, the mountain is frequented not only during celebration days and rituals, but also by hikers who retrace the steps of saints and hermits on the traced paths. There are about 40 rock hermitages in the Park, located in canyons or on steep walls, deeply merged in and with the rock in a spiritual continuity between man and nature.



THE DRY-STONE WALLS INTANGIBLE CULTURAL HERITAGE **unesco**

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PALAEONTOLOGY COLLECTIONS

It is possible to admire the geology and palaeontology heritage of the Maiella UGGp in several museums and in traveling collections and exhibitions. **ALTO AVENTINO GEOPALAEONTOLOGICAL MUSEUM, in Palena (CH)**, where fossils found in the Capo di Fiume Geosite are exhibited, such as the skeleton of a Prologa and conspicuous finds of paleoflora and fishes, as well as hippopotamus remains from the Ortona deposit and large mammals of the Pleistocene. **Ducal Castle, 1+39.349.1950922, www.museogeopaleontologicopalena.it**

BARRASSO MUSEUM in Caramanico Terme (PE) has a beautiful geological showcase with finds related to the sedimentation and emergence of the Maiella mountain. **via del Vivaio, +39.085.922343, caramanico@parcomaiella.it**



NATURALISTIC - ARCHAEOLOGICAL MUSEUM "M. LOCATI" in Lama dei Peligni (CH), inside which are exhibited fossils from the Cave of the Flying Bears in Rapino (Ch): among them, the brown bear, the cave bear, the cave lion, the rhinoceros and a left mandibular branch of a macaque are present. **Loc. Colle Madonna, +39.0872.916010, lamadeipeligni@parcomaiella.it**



MUSEUM OF FOSSILS AND AMBERS OF SAN VALENTINO in Abruzzo Citeriore (PE) contains findings belonging to the main animal and plant groups, coming from important Italian and foreign deposits. Through the museum exhibition, it is possible to travel through the history of the Earth, from the Palaeozoic Era to the present world. **Via Cupoli 10, +39.360.612307 www.ambrefossili.org**

THE EXHIBITION

The Maiella mountain 16 million years ago: dolphins, seals, sharks and crocodiles
The exhibition contains a glimpse into the life and the environment of the Tethys Ocean between 20 and 15 million years ago. For the first time, fossils that testify the biodiversity of that ancient sea have been brought together: sharks, crocodiles, seals and squalodons, some on public display for the first time such as *Squalodon*. **www.museounich.it**



GEOTRAILS

The Maiella UGGp promotes and supports sustainable tourism, relying on a network of over twenty visitor offices, museums and a network of trails and bike trails of approximately 1200 km in total. The geological themed hiking itineraries allow you to admire and learn about the many geological peculiarities of the Geopark territory.



PASSO SAN LEONARDO - ROCCAMANICO Maiella UGGp western side (geosites 60 and 5)

The geotouristic route from geosite 60 of the Geopark database, called "Passo San Leonardo panoramic point", in the parking area. From here, an exceptional observation point, it is possible to observe the western side of the Massif, the Orta valley, the eastern side of Mount Morrone, to arrive with a view up to the southern offshoots of the Gran Sasso. The path, through fabulous woods and wild nature, reaches the town of Roccamanico, from whose Piazza Callarone you can enjoy one of the most evocative views of the Maiella. In the inhabited center, the Roccamanico conglomerate emerges, an imposing lithological formation with typical layer characteristics, deposited in a short time interval and indicative of the Miocene-Pliocene transition (5.3 million years).



PENNAPIEDIMONTE - VALLE DELLE TRE GROTT Maiella UGGp eastern side (geosites 74 and 6)

Along the path that from Pennapiedimonte enters the Avello-Tre Grotte Valley, a continuous stratigraphic section emerges, belonging to the Santo Spirito Formation, a geological formation dating back to the lower Eocene - Middle Oligocene period (between 42 and 31 million years). Along the path, it is possible to meet both the lower limit of the Santo Spirito Formation, i.e. the contact with the underlying Orfento Formation (upper Cretaceous), and its upper limit, i.e. the one with the more recent Bolognano Formation (upper Oligocene - Upper Miocene). In the geological section exposed near Pennapiedimonte, one can mainly recognize marine sedimentary facies where it is possible to notice two layers, rich in nummulites and other benthic organisms such as corals and coralline algae.



In addition, the Maiella UGGp is working on setting up two new trails, one linked to the Second World War and the other to the Majella Mining Basin. The path dedicated to historical memory will cover the territory of five municipalities and will retrace the route of the Gustav Line, a German defensive system built at the end of 1943 to counter the advance of the Allied Liberation Forces. The "Miners' Trail" will trace the history of the activities in the mining basin in the northern sector of the Maiella Mountain, included in the territory of six municipalities, and which will include the geosite of the Acquafredda mines.



Ten Days in Stone and "Fiabosco"

"Ten days in stone" is an international event dedicated to the white stone of the Maiella and the stonecutter tradition, widely spread in many villages of the Geopark. Theatrical performances, concerts, conferences, memorials, excursions, training events, held over the course of ten days, in which the sculptors meet in **Lettomanoppello (PE)** to celebrate the stone masters of the past and to create their "pietrales" that will end on the walls of the historic center. Within the small village of Lettomanoppello, the shops that refer to tradition still live, both in terms of style and working techniques. The enhancement of the stonecutter tradition is now allowing to encourage the recovery of the art of stone masters, with the creation of stone furnishings, such as fireplaces, bas-reliefs, lamp holders, sculptures. **"Fiabosco"** is the first imaginary forest in Italy and more precisely in **S. Eufemia a Maiella (PE)**. "Fiabosco" wants to protect the fantastic creatures that animated the imagination of those who preceded us to offer them to those who want to immerse themselves in a unique journey, to the source of the stories. Imagine a place where imagination and fantasy are protected. A place populated by fantastic and extraordinary creatures, who have inhabited the depths of these territories for centuries; a place full of ancient stories, handed down over time in an attempt to reveal the mystery of existence. Imagine a place where the ancient Maiella stone is shaped by the imagination of sculptors from all over the world, reconnecting the thread with the traditions of the past.

