

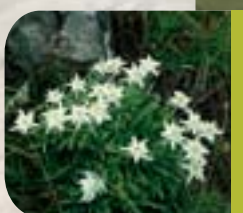
## The geology

The origin of the Cold Valley dates back to the last ice age called Würmania which ended 15-20,000 years ago. Two obvious signs left by the glacier withdrawal can be found throughout the territory which includes the Cold Valley: the first is the unmistakable "U" shape, typical of alpine valleys; the second consists in accumulated material ranging from small sized pebbles to large boulders, so-called erratic. These stones are mainly composed of sandstone and porphyric compounds, materials typical of the Camonica Valley. The layer of pebbles forms the "heap" area.



## The microclimatic phenomenon

The morphology of the territory plays an essential role in the microclimatic phenomenon since it leads to the creation of environmental conditions ideal for the growth of flora typical of high mountain areas. The **microthermal phenomenon** is caused by the movement of ascensional air currents which are triggered between Mount Grione and Mount Nà; these currents then mix with the axial winds from the Cavallina Valley. The other contributory factor is the debris which enables the conservation of low temperatures. In winter when it rains and snows the water and snow penetrate the subsoil thus coming into contact with the cold gravel and are transformed into ice. In summer the debris keeps the temperature of the air flowing within it at low temperatures as it makes it heavier. Thus the gravitational force and the breezes blowing above the valley cause the "mouths" to emit icy air.



In summer months the warm, humid air which comes into contact with the ice cools down, thus maintaining a climate around these meatus which enables the conservation of the microthermal flora. The Cold Valley is characterized by two types of climate : the general one, which is not influenced by phenomena connected with the cold air mouths, and the "microclimate" present in the microthermal area where there is the presence of cold air emission. The measurements taken by L. Fenaroli in 1962, between 4 and 5 pm, recorded a thermal variation of approximately 27° between the atmosphere of the valley and that of the air breathed out of the mouths.

## Regulations

Zones A and B are open to the public for tours only if they are on foot and accompanied by authorized personnel, in groups of not more than 100 people a day in the months of May, June and July.

Access to the Nature Reserve is regulated by the Regional Council resolution n° 7/19213 of 29.10.2004 which prohibits the following: picking, removing or damaging spontaneous flora; lighting fires in the open; disturbing, damaging, capturing or killing wild animals, collecting or destroying their nests, dens or dwellings, damaging or destroying their habitat; hunting; putting animals out to pasture; introducing non-native animal or plant species; activities connected with advertising; organizing folk displays or sporting events; camping, passing through the area with motor vehicles, in the nuclei of particular importance highlighted by the plan, leaving the footpath; carrying out studies or research which involve taking samples from nature or other exceptions to the prohibited activities; carrying out any activity which, even if only of a temporary nature, will, as indicated by the plan, lead to alterations in the quality of the environment which are incompatible with the aims of the Reserve.



## Tours and Information

**Saturdays:** from 1.30 pm. to 6 pm.

**Sundays:** from 9 to 12 am and from 1.30 to 6 pm.

**From Monday to Friday only by reservation,**  
contacting the Reserve Authority:

**Comunità Montana dei Laghi Bergamaschi**

Via del Cantiere, 4 - LOVERE (BG) - Ph. 035/4349811  
info@cmlaghi.bg.it - www.cmlaghi.bg.it

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**The Cold  
Valley**  
Nature Reserve



Regione Lombardia  
Direzione Generale  
Sistemi Verdi e Paesaggio

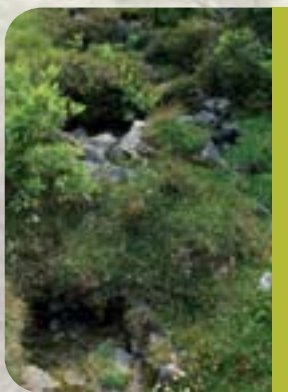




## The "Cold Valley" reserve



The **Cold Valley** was recognized as a "biotope" by the Regional Government of Lombardy on 3rd December 1981. It is situated in the municipality of Solto Collina at an altitude of 350-700 metres and covers an area of approximately 70 ha. The reserve encloses a particular microclimatic phenomenon which causes the growth of typical high mountain flora. The first botanist to explore the Cold Valley was Guido Isnenghi who, in 1939, when passing through from Piangaiano, noticed an Edelweiss flower in a hunter's hat. The hunter claimed to have picked the flower in the area which has now become the reserve. The botanist followed the hunter's directions and once on site he was able to ascertain the presence of plant species which are typically found at high altitudes. The **cold holes** or "mouths" which emit icy air are the crucial factor behind the presence of these species. From that moment on numerous researchers and experts have studied this phenomenon. In 1962 Luigi Fenaroli published the first collection of studies carried out in the valley revealing approximately 160 plant species, 24 of which were Alpine. Following Regional Law n. 86/83 the Cold Valley was established as a Nature Reserve with the aim of protecting the geological, plant and zoological heritage.



## The vegetation

The two different climates present in the reserve cause the existence of 4 unique environments each with different ecological and therefore also botanical characteristics.

The **coppice** made up of broad-leaved trees like the hazel, Manna Ash and the Hop Hornbeam and the **pine wood** made up of Scots Pine.



In the **arid grassland** species which live on shallow, dry ground can be found. In this area the *Cytisus insubricus* and numerous spontaneous orchids can be found.



*Anacamptis pyramidalis*



*Dactylorhiza maculata*

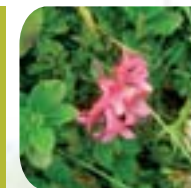


*Ophrys insectifera*

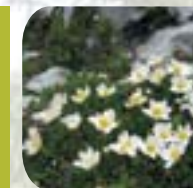
In the **heap** (microthermal area) the flowers grow on the debris and therefore have roots at temperatures which are 4-5° C lower than those existing a few centimetres above ground.



*Leontopodium alpinum*



*Rhododendron hirsutum*



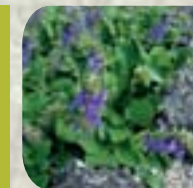
*Dryas octopetala*



*Saxifraga hostii*



*Phyteuma scheuchzeri*



*Hornimium pyrenaicum*



*Pritzelago alpina*



*Cerastium carinthiacum*



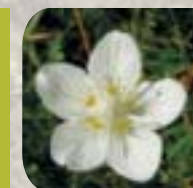
*Pinguicula alpina*



*Gentiana verna*



*Euphrasia salisburgensis*



*Parnassia palustris*

## The fauna

The Cold Valley Nature Reserve hosts the **woodland and grassland fauna** characteristic of the Lombard mid-mountains. The fauna is therefore no different from that present on the outskirts of the valley. The most diverse category of fauna is birds with 28 species present, among which there are blackbirds, great tits, chaffinches, shrikes, greenfinches, robins, jay birds, and hoopoes. The woods rich in hazels and pines provide the habitat for numerous invertebrates and mammals such as dormice, common dormice, some squirrels and reptiles such as vipers and whip snakes, green lizards and common lizards. Along the paths it is possible to come across hares, weasels, deer and roe deer.