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Total distance (loop trail): about 3,5 kilometers.
 Gradient uphill: 200 m.
 Walking time (including stops and return): 2 hours.
 Best period: May to November.

In the imagination of the visitor of the Park there are animals such as the wolf, the deer, the eagle which may seem emblematic of the character and values of the territory. In fact there is a tree, the Silver Fir, *Abies alba*, that perfectly synthesizes the high level of natural authenticity of these places as well as the presence of a certain old history. The history, that has as its protagonist the majestic tree, begins with the monks of Camaldoli who, in 1080, first established, a Forest Code centering their attention upon the Silver Fir, causing the transformation of vast portions of a mixed deciduous forest and conifers into pure fir forests: the "abetine". The soaring columnar forest projected into the sky, evergreen and symbolizing the continuity of life even in the off season, and its exceptional size, are all features that have definitely helped to infuse a mystical charm, particularly in the Camaldolese monks. But what has interested men, monks or Forestry Commission men, was that the precious wood of this tree, whose trunks were once particularly needed for shipbuilding, in the shipyards of Pisa and Livorno, and utilized in the building of the Florence's Cathedral. The Nature Trail unfolds within the so-called Fosso Abete, which as the place-name suggests it is a plantation of Silver Fir. The lookout points will help us to unveil some of the secrets of the symbolic tree concerning both nature and culture.

Welcome to Campigna

NATURE TRAIL

NATURE TRAIL

Campigna

The silver fire and fir forest



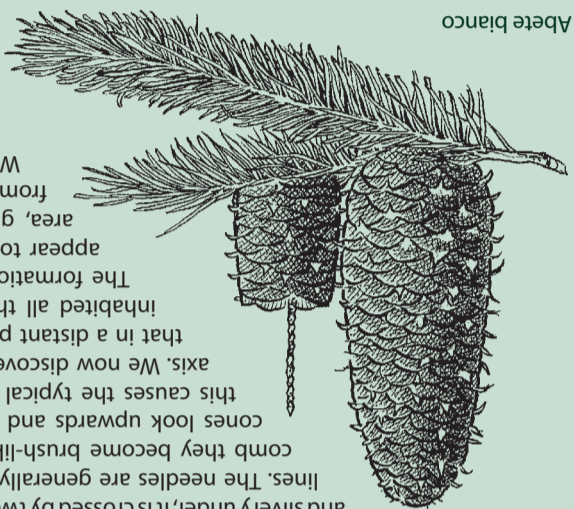
Parco Nazionale
 Foreste Casentinesi
 Monte Falterona
 e Campigna



We are in the midst of a dark and apparently wild forest. Yet it is a man-made woodland! Fir forests like this one have been created on the Tuscany and Romagna Apennine since ancient times: their diffusion begun with the settlement of the Camaldolese monks and continued during the 19th century thanks to the work of the Bohemian forestry engineer **Carlo Siemoni** (Karl Siemon), the administrator of forests for the Grand-Duchy of Tuscany and, beginning from 1914, of the State Forestry Commission. The forest as we see it grows on deep soil, sheltered by the wind, on a not too steep slope, easily reachable through forestry lanes, and on a range of altitude suited to the ecological requirements of the White fir. In addition, all trees are roughly of equal size and therefore of equal age, a situation which certainly does not occur in nature. Furthermore, in the underwood there are no seedlings and young Silver firs. A situation underlying the departure from a natural balance. In the past the management cut down all trees and operated an immediate reforestation, today the "cultivation" of the fir is completely changed. "Although the intent is to preserve some historical and monumental parts of the forest and cutting now occurs only in special circumstances, the future of the Silver fir is falling back into the hands of "Mother Nature."

HALTING POINT 2

The silver fir forests of Campigna



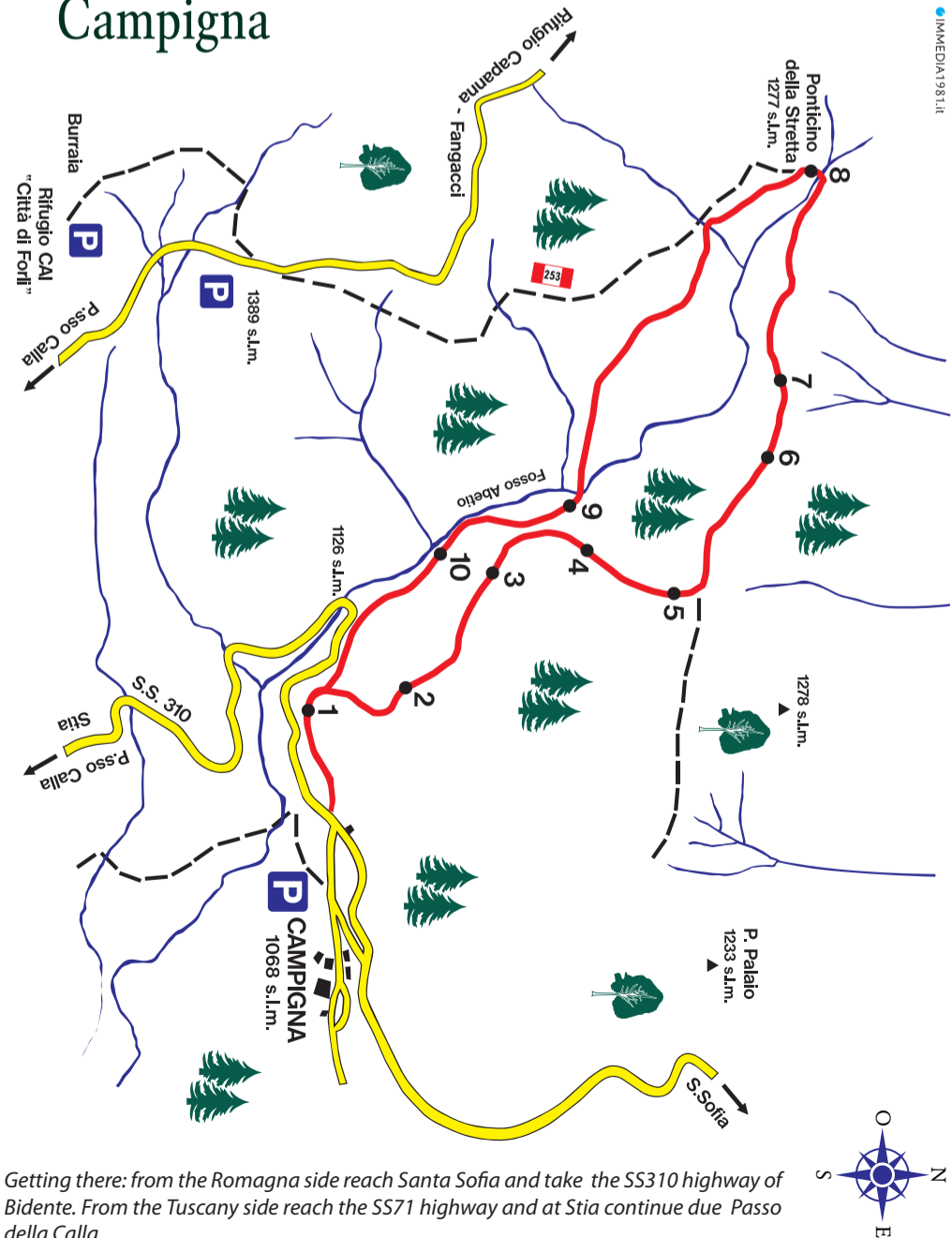
Here before you is the protagonist of this Nature Trail: the **Silver Fir**, known by the scientific name of **Abies alba**, a tree with an erect countenance of great dimensions, can reach 40 to 50 m in height and 3 m in diameter. Its lifetime is remarkable, it can, and it does surpass 300 years: not by chance its name *Abies*, deriving from the Greek means "long living". Observe the flattened needles, dark green on top, and silvery under, it is crossed by two peculiar whitish lines called "stomatiferous" lines. The needles are generally aligned to form a kind of comb. From the comb they become brush-like on fertile, cone-carrying branches. The cones look upwards and progressively shed their scales and seeds: this causes the typical look of the cone, with an isolated central axis. We now discover its distribution area: we, in fact, suppose that in a distant past an ancestor fir existed, which profusely inhabited all the mountains of the Mediterranean basin. The formation of mountain chains and the glaciations appear to have fragmented the original distribution area, giving rise to diverse isolated populations, from which the modern species derive. Today the White fir is in Italy distributed in the Alps and the Apennines, and it is therefore a native species of the Apennines of Tuscany and Romagna.

HALTING POINT 1

The Silver fir

NATURE TRAIL

Campigna



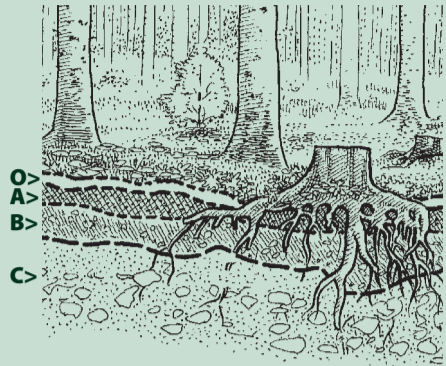
Getting there: from the Romagna side reach Santa Sofia and take the SS310 highway of Bidente. From the Tuscany side reach the SS71 highway and at Stia continue due Passo della Calla.

HALTING POINT 3

The Hidden world of the soil

The forestry lane cuts through the forest enabling the observation of a hidden world: the soil. This natural element, alive and rich in biodiversity, is also a means for the plants to obtain water and mineral salts. The root system of the Silver fir, which we have before us, initially develops in depth and then laterally, occupying an area of a comparable size to that of the aerial parts of the plant. This allows it, unlike other species that have a very flat root system, to anchor itself firmly to the ground and to colonize harsh and rocky environments.

Let us now look at the soil in section to appreciate the various layers, called "horizons" which typically consist, from top down, of:



Horizon O, or the uppermost portion, which includes the litter and the major organic components (leaves, branches, etc...);

Horizon A, where organic matter mixes up with the mineral generating humus, an element of fundamental importance, which greatly affects the quality and character of the soil;

Horizon B has a predominantly mineral content;

Horizon C has an essentially mineral content, rich in fragments of bedrock.

The various types of soil are classified based on these horizons: in harsh environments the soil cannot enjoy a complete evolution, surface horizons appear thinned or failed, in forest ecosystems the soil looks mature, consistent and rich humus.

HALTING POINT 4

The Spruce

Although they may appear similar at first glance the **Spruce Picea abies** is easily distinguished from the Silver fir *Abies alba* thanks to the following: Needles are mostly rhomboid in section, instead flattened; Needles that do not show two silver lines under them; Needles inserted on a lifted cushion and usually arranged in a spiral fashion, and not aligned on the branches, forming a comb; Pendulous rather than erect cones, that detach whole after the fall of the seed; Bark that peels off over the years to leave the layer under, reddish brown.

At the halting point 8, it will not be difficult to distinguish the countenance of a spruce, straight and slender with triangular crown, more acute than that of the silver fir, which has a pyramidal crown and with remarkable development of the lateral branches at the expense of the summit.

The spruce is distributed from the Pyrenees to Siberia and in Italy mainly in the Alps. In the Apennines is considered indigenous in only two small stations, the Alpe delle Tre Potenze (Pistoia) and the Passo del Cerreto (Reggio Emilia): In the Campigna Forest has been introduced by man for economic purposes. The wood has always been widely used in carpentry, but also in the creation of musical instruments: for this purpose it is always used the so-called "resonance wood", which is obtained only from plants, not easy to find, that have had a particularly slow and steady growth.



HALTING POINT 7

Geology and vegetation

The path has now reached the limits of the fir and here the border with natural wood of beech is sharp. On the opposite side the natural forest has been preserved precisely because of the steep slope, due to the inclination of the strata. The slope where the abetina is, the position is *franapoggio* and the layers emerge parallel to the walking surface. The side with the beech wood is instead a *reggipoggio* and individual rock layers are well visible. A keen eye may recognize two particular plants on the jumps of rock below us: one of them is the **Yew Taxus baccata** and the other the **Holly Ilex aquifolium**. The Yew produces a woody seed wrapped by a fleshy ring of red color, called "arillo" (aril). The aril is the only non-poisonous part of the plant, while all other parts contain the "tassina", a toxic substance which is the reason for the nickname "tree of death". The slow growth rate and longevity of the Yew are legendary, so much so that some specimens are more than two thousand years old. Holly has leathery leaves, wavy and toothed and the fruits are fleshy, scarlet red, drupes. It is

'because of its beauty that it was abundantly collected for ornamental purposes. These two species have similar requirements as ecology and both are very rare. In our case, the reason for their preservation is to be found in the variability of morphology: in our case, it is in the rock jumps that often these species have found a safe haven that has saved them from disappearing.



HALTING POINT 8

A winged climber

Numerous animals are guests of the Abetina. Among them, although difficult to observe, birds have the ability to communicate through song and verse, and this allows you to identify them more easily. Each species has its own chant or peculiar sound, and so it is possible, through listening, to distinguish one species from the other. In spring and summer it is easy to listen to the songs that species emit for reproductive purposes, real melodies and in some cases also very articulate. In autumn and winter we hear other sounds rather simple, that species use during the year to communicate with each other according to different needs. Let us dwell on a species of particular interest, present in this Abetina of Campigna. If listening to the sounds of the forest we find a verse that has few high notes that repeat a verse just sketched. If we are lucky we will notice a tiny bird with the skills of a proficient "climber": the **Eurasian treecreeper**.

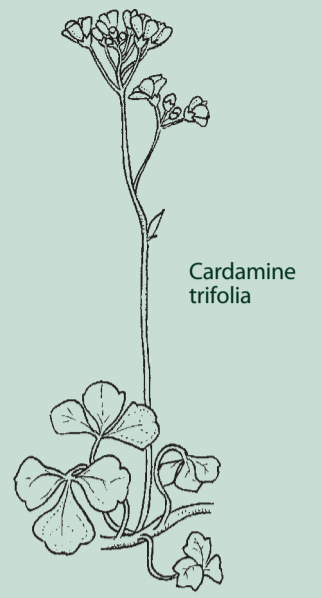
Fascinating to watch him while diligently climbs with spiral movements up a trunk, climbing on the bark in search of small invertebrates and finally, on coming to a certain height, with a short and nervous flight reaches the base of a nearby tree, and again goes back to the top. The treecreeper is a species closely tied to the mountain pine forests and its distribution in Italy is concentrated at a few stations in the Alps and Apennines: the silver fir forest of Campigna is one of them.



HALTING POINT 5

Under the shade of the fir tree

The undergrowth of fir forest also has a very variable flora: in very dense woodlands the undergrowth is practically non-existent, while in normal density woodlands the light filtering through the foliage enables the development of species, which, however, have to deal with the particular "acidity" soil, determined by the deposit of resinous needles and twigs which decompose very slowly. *Cardamine chelidonia* is, for example, common in fir forests, in an annual plant that is often found in the furrows created by the timbers during skidding. Soil acidity also favors species like *Luzula nivea*, *Hieracium murorum* and *Senecio Nemorensis*. Species also typical of beech woods are also *Gallium odoratum*, *Saxifraga rotundifolia*, *Sanicula europaea*, *Cardamine heptaphylla*, *Cardamine trifolia* and geraniums like *G. nodosum* e *G. robertianum*. Among the most interesting orchids we find those of the genders *Epipactis*: in this location a new species has in fact been described, called Romagna's helleborine *Epipactis flaminia*, to date only found in the area of our Park. We can also observe *Epipogium aphyllum*, typical of spruce forests of the Alps and very rare in the Apennines, or the most common Bird's-nest Orchid *Neottia nidus-avis*. Both of these orchids are obligatory saprophytic, or do not perform photosynthesis but live at the expense of dead organic substances, lacking green parts and chlorophyll.

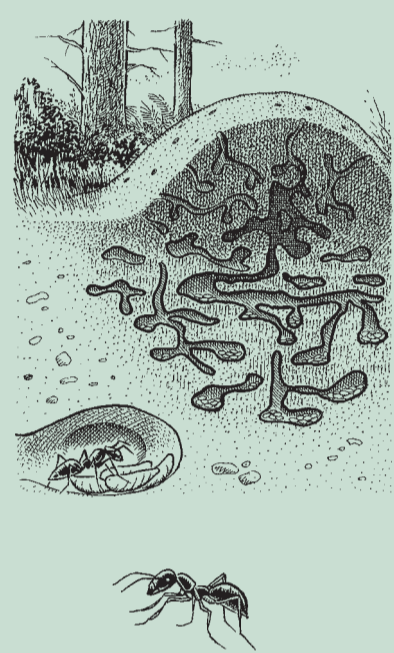


HALTING POINT 6

The red wood ant (*Formica rufa*)

The large heap of needles, twigs and bits of fir resin you looking at is actually the work of a prodigious insect: the **red wood ant (*Formica rufa*)**. The heap only consists of the surface portion of the nest of this ant, while the main portion is dug in the ground and consists of tunnels and chambers realized on different levels. An anthill can accommodate from half a million to several million individuals! If some of them are annoyed by your presence were coming up your clothes, you will probably have noticed a very special pungent smell: it is the smell of formic acid, the terrible chemical weapon with which ants hunt prey and defend themselves from predators. All ants produce formic acid, but never in as high amounts as *rufa* does. In the abdomen of these ants there is a "reservoir" of acid that weighs almost a fifth of their body! Along the way you may have noticed guards and signs calling for the protection of nests: it is proved that the red wood ant (*Formica rufa*) plays an important role for the containment of the many harmful insects to the trees: it was calculated that the workers of a nest capture in a day at least 4,000 larvae of wood beetles and a number of insects close to around 50,000.

The role of "guardians" of the coniferous forests prompted the enactment of a law for the protection of anthills and a vast campaign of uptake in Apennine areas (the red wood ant (*Formica rufa*) is native to the Alps), carried out since the early 70's in reforestations of pine and fir.



HALTING POINT 9

Toward a natural forest

A natural forest appears to the observer as an ancestral and unchangeable environment. In fact it is in a state of dynamic equilibrium: organisms make their life cycle and are replaced by others at their death. An ecological concept employed to indicate the state of stability of a biological system is the "climax", which may well be applied to the vegetation.

But this is not the case of our Abetina: planted by man nearly a hundred years ago, it tends to take on the characteristics of the vegetation climax of the area. But how will this forest develop in the future? Just look at the "youngsters" that currently inhabit the undergrowth of the fir forest: a few white firs, many beeches, some mountain maples and to a lesser extent other deciduous. The Silver fir will therefore be in the future one of the species, while the beech is the dominant species, as happens in

this altitude. In the past man has conducted continuous forest operations to ensure the maintenance of fir forests. Currently the conversion of the fir to the natural beech forest is in many cases supported by man, by favoring the presence of deciduous trees or by inserting rare species such as the Yew and holly. The gradual conversion of the pure fir forest into a more natural formation will then determine its death, although the Abetina of Campigna for its historical and monumental value will be partially maintained over time.



HALTING POINT 10

The Health of the Silver fir

Fir forests create several problems in forestry management because, due to their artificial origin, they exist by virtue of a delicate biological balance! The Silver fir is threatened by numerous enemies, albeit none of them, in itself, lethal. Insects and Fungi are the most obnoxious agents, since acting directly under the bark, they undermine the health of the fir. Attacks by wood eating insects (xilophagae) are also dangerous, among these are the beetles belonging to the families of **scolitidae** and **curculionidae**. They dig tunnels whose floor is the wood and the ceiling is the bark; these tunnels follow elaborate routes, which are exposed when the dried up bark falls off the trunk of the tree. Thus the nickname of insects-typographers, for such pests. Fir trees are frequently subject to the attacks of tiny single cell fungi, whose effects manifest themselves in the form of blatant cancers, which we may observe in tree trunks around us. Very blatant is instead **Fomes annosus**, a parasite fungus which creates peculiar shelves on old tree trunks, causing what is known as radical rot which may lead to the collapse of apparently healthy trees of large dimensions. Also climatic agents may seriously threaten the health of the fir: during severely cold Winter days, the fog that freezes into ice may overload the branches, breaking them, and may uproot the whole tree.

