

MUNȚII RODNEI NATIONAL PARK

VISITING RULES:

- ⇒ Visiting the park is allowed only on the marked touristic trails;
- ⇒ The access into the **Corongișu Mare Scientific Reserve** is allowed only with a written permit issued at the headquarters of the park administration (Located in Rodna, Bistrița-Năsăud County);
- ⇒ Camping is allowed only in the specially designed places;
- ⇒ Waste disposal is allowed only in the specially designed places.

IT IS FORBIDDEN:

- ⇒ To destroy the markings, signs, indicators and other montane infrastructure;
- ⇒ To set fires and burn herbal and wooden vegetation;
- ⇒ To enter the areas of scientific interest without approval and unattended by park personnel;
- ⇒ The sonic pollution of any kind;
- ⇒ To enter the park with any motor vehicles (cars, motorcycles, ATVs, etc.);
- ⇒ To destroy and/or collect the flora and fauna.

DO NOT START YOUR TRIP INTO THE MOUNTAINS WITHOUT PROPER EQUIPMENT OR WHEN WEATHER CONDITIONS ARE UNFAVOURABLE!

ALWAYS RESPECT THE RECOMMENDATIONS RECEIVED FROM THE VISITOR POINTS OR FROM THE FIELD RANGERS!



MUNȚII RODNEI NATIONAL PARK

Let's discover together some of the nature's beauties along the nature trail:



Valea Vinului - Saca Mountain



Design and text: I. Dutcă and T. Stăncioliu - Faculty of Silviculture and Forest Engineering, Brașov.



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GENERAL INFORMATION

The information points are represented in the field by wooden panels containing a short description of the subject as well as suggestive images. Each panel is briefly presented in this brochure. Please look around carefully to not pass by these panels without noticing them!

The nature trail starts from Valea Vinului village (750 m alt.), follows the forest road ascending on Secii Valley up to the meadow on the Saca Mountain. From here the path crosses the meadow, passes by the **Glade of Narrow-Leaved Narcissus** (1450 m alt.) and by the sheepfold from Dealul Popii and then goes again into the forest. Farther, the trail descends to the valley, crosses Valea Secii brook and ends into the same forest road used to go up.

The trail has a total length of approx. 11.7 km (round trip), of which:

- ⇒ a common part (for walking up and down the trail) of 4,8 km - from the exit from Valea Vinului village to the point where the loop begins;
- ⇒ 6.9 km of circuit through forests and meadow.

The time needed to complete the trail is of approx. 5 - 7 hours (round trip). The route is entirely marked with the sign:



Follow the sign and don't deviate from the trail!

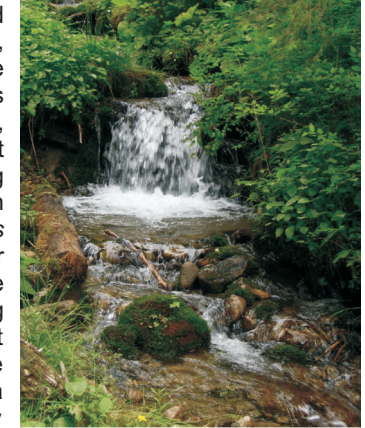
This brochure with the presentation of the nature trail is available on the park's website (<http://www.parcrodna.ro>) or at the visitor centers.

Point 1. Departure/arrival panel

*Welcome to the nature trail Valea Vinului - Saca Mountain!
Here are some of the beauties you can admire walking up on Secii Valley!*

Point 15. The mountain river - a source of life

Clear and crystalline during sunny days, torrential and tempestuous after the summer rains or during snow melting, the montane fresh waters are a source of life for all the creatures living around them. The mountain river harbors numerous species of animals and plants that need clear, oxygen rich, rapid and cold waters. Among fishes, the most known are the trout (*Salmo trutta fario*) and the grayling (*Thymallus thymallus*), fast swimmers in these rapid mountain waters. Beside them, we could see the river bullhead (*Cottus gobio*) and the minnow (*Phoxinus phoxinus*). The dipper (*Cinclus cinclus*) and the grey wagtail (*Motacilla cinerea*) are flying from a rock to another on the riverbank. Among



mammals, the most representative is the otter (*Lutra lutra*), a gifted fisher, perfectly adapted to these conditions. Hard to notice, but in a large number, numerous species of small size aquatic animals live in these crystal waters. These minuscule organisms, in order to resist the strong and fast currents of the mountain rivers, have special adaptations by which they fix on the rocks (ex. they have flat body and fixing devices - suckers, hair and spikes, claws, etc.). They purify the river water and represent the main food for the fish.

Remember: the presence of fish and of other aquatic organisms indicate a clean water. To enjoy the fresh crystal waters of the montane rivers we must keep clean this source of life for nature and for all of us!

Here our nature trail ends. Thank you for your patience and interest! We hope you have learned today new things from the open book of nature!

To discover other beauties of Muntii Rodnei National Park, we recommend you to also visit the nature trail Borșa Resort - Izvorul Bistriței Lake!

Point 14. The forest vegetation - shield against erosion and landslides

Due to their steepness, the montane slopes are very vulnerable to erosion and landslides. When the vegetation layer is missing, the water from heavy rains or snow melting washes away the soil and any small crack easily becomes a huge ravine. All the materials are transported down to the valleys. On their way they rapidly accumulate in large amounts and produce disastrous floods at the bottom of the mountain. Sometimes, if the instability is even higher, entire slopes slide downwards destroying everything in their way. These phenomena can be easily seen on terrain without vegetation cover or where this cover was recently disturbed. Things are very different for this forest on the slope of Secii Valley.



To efficiently gather the food and also to confer stability to the trees, their roots extend both around and in depth, exploiting every centimeter of soil and infiltrating in any crack of the rock.



The root networks of the neighboring trees and shrubs interpenetrate each other, creating a very dense net which holds together the soil, scree and rocks.

Beside the roots, the trees protect the forest ground with their dense crowns that collect the raindrops and reduce their impact over the soil. Even the herbs and the dead leaves and branches fallen on the ground intercept the water and delay its flow to the valleys. This way, part of this water infiltrates in the soil, some evaporates in the air and only a small part is left to pass to the valley. We can say that, in these mountainous areas, the forest is the most important factor in the fight against erosion and landslides.

Remember: on the steep slopes in the mountainous areas, the forest is efficiently fighting against erosion and landslide. It protects our homes and acts like a filter that keeps the rivers clean!

Point 2. The grey alder riparian forests - a protection shield against floods

Here on Secii Valley, the torrential and tempestuous mountain river makes its way down to the bottom of the mountain meandering amid rocks. We can often see along its course, small patches of grey alder riparian forests - a real shield against erosion produced by the rushing currents and the floods following heavy rains or instant snow melting. The alder trees fix the sands and gravels with their roots while their rich crowns create a green and shady roof over the crystal waters. These ecosystems keep pure and cool the mountain river waters, harboring the fast swimming trout and refreshing all living creatures of the forest.



Remember: the presence of grey alder riparian forests along the mountain rivers bring stability and clear waters. Let's enjoy together their shadow and freshness without hurting the trees and without leaving behind our waste!

Point 3. The mixed species forest - a complex ecosystem

The tree layer of a forest can consist of one single species of trees, or it can be composed of two or more tree species. In the first case, we have a **pure forest** while in the latter we have a **mixed forest**.



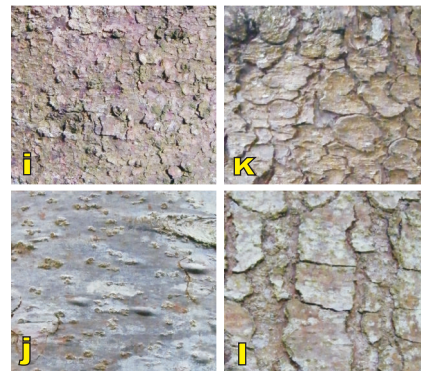
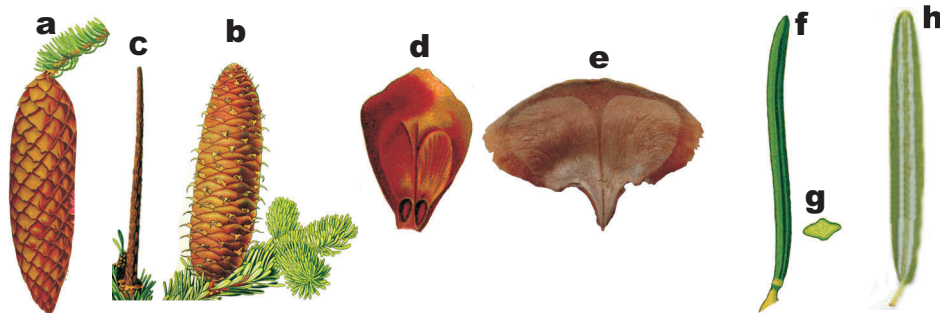
For the mountainous area, one of the most common examples of mixed forests is the spruce fir beech forest, a widespread ecosystem in the Romanian Carpathians. These forests are like a transition belt from pure beech forests (located generally at lower altitudes) to the pure conifer forests (which go up to the limit of the forest). This spruce - fir - beech mixed forest from Secii Valley is remarkable having a highly diverse flora and fauna. Small and large mammals, herbivores and carnivores, all could be met on its dark paths.

To enjoy all these beauties of the mixed forest, let's walk and admire it quietly, without picking the flowers or hurting the trees!

Point 4. The silver fir and Norway spruce - two brothers of the mountain

Although very often we confound these two trees, there are enough features to help us differentiate these two brothers from one another:

	Norway spruce (<i>Picea abies</i>)	silver fir (<i>Abies alba</i>)
Cones	they have a pendent position on the branches (i.e. they hang - a); at maturity, after they release the seeds, the entire cone falls on the ground	they stand up on the branches (b); at maturity, the scales detach and fall on the ground together with the seeds (on the branch remains only the ax of the cone - c)
Cone scales	narrower than the fir's, rhombic at the tip and breached (d)	wider and rounded at the tip looking like a fan (e)
Leaves (= needles)	with a sharp tip (they sting when grabbed by hand - f) and with four edges (i.e. rhombic section - g)	flat, with a breached tip (they don't sting when grabbed by hand - h) and with two white stripes on the back
Crown shape	they keep the pyramid shaped crown with obvious sharp top	at maturity the top gets round and flat (called also "stork nest")
Bark (young trees)	light-brown with small scales, easy to detach by scrubbing (i)	greenish-grey and smooth, with resin bags like small blisters (j)
Bark (mature trees)	reddish-brown and cracked in polygonal or sometimes rounded scales (k)	dark-grey and cracked mostly longitudinally (l)



Let's learn from this open book of the nature how to differentiate in the mountains these two brothers - the silver fir and the Norway spruce!

Point 13. A mixed forest on steep slopes and ravines - diverse ecosystem and priority habitat of community interest

On this steep slope of Secii Valley we can find a very interesting ecosystem - a forest where numerous species of trees live together. If we look around carefully, along the path we will see beech, fir and spruce, species widely spread in our forests but also other species like: mountain elm, common ash, sycamore maple, trembling aspen, silver birch, goat willow and, at lower elevations close to the bottom of the mountain, even hornbeam. This diversity of trees provides support for a very rich fauna.



European beech (*Fagus sylvatica*)

Mountain elm (*Ulmus glabra*)

Common ash (*Fraxinus excelsior*)

Sycamore maple (*Acer pseudoplatanus*)

Trembling aspen (*Populus tremula*)



Silver birch (*Betula pendula*)



Goat willow (*Salix caprea*)



Hornbeam (*Carpinus betulus*)

Compared to the mixed forest which can be admired at Point 3 on this trail, this forest is different by the fact that the common ash, the sycamore maple and the mountain elm cover significant areas and often form wide pure patches. Here, the beech, fir and spruce (dominant species in the common mixed forest) and the other species of trees are present more as scattered individuals, dispersed in the forest.



Perennial honesty (*Lumaria rediviva*)

The particularity of this forest is emphasized also by the diverse herbs layer dominated by two species: **Perennial honesty** (a-plant with flowers; b-fruits) and **Hart's tongue fern**. Due to the unique association of tree and herb species, but also due to its importance in fixing steep slopes, this type of forest is considered a **priority habitat of community interest**. According to the European Union's habitats interpretation manual it is included under the name "9180* Tilio-Acerion forests of slopes, screes and ravines".

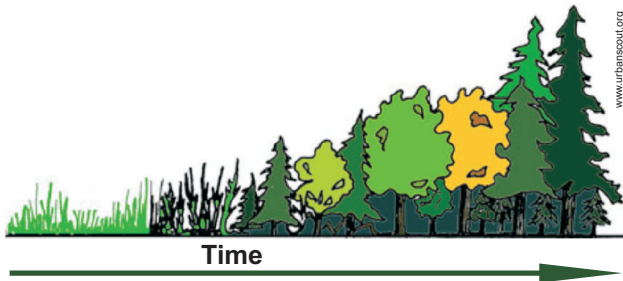


Hart's Tongue Fern (*Phyllitis scolopendrium*)

To enjoy all the beauties of this forest, let's walk and admire it quietly. Don't leave behind your waste, don't pick the flowers, don't hurt the trees and don't disturb the interesting and diverse inhabitants.

Point 11. The natural succession of species - essential element in the natural ecosystems dynamics

The structure of natural ecosystems is influenced by numerous biotic and abiotic factors. These factors modify the balance of the ecosystem and create favorable conditions for new species to install. As a result, some species are replaced by others, better adapted to the new conditions, this process being called **the natural succession of species**. Here in the Saca Mountain, due to the reduction of grazing, the spruce seedlings installed inside the meadow which borders the forest, have more and more chances to survive and become mature trees. Therefore, we are witnessing a process of succession. The drawing shows us how the meadow - a herb species ecosystem, tends to be gradually replaced by a forest one - the spruce forest.



Remember: the natural succession of species is an essential part of the natural ecosystems dynamics. Let's learn from the open book of nature here in the Saca Mountain!

Point 12. The dead wood - important element in the life of natural ecosystems

In nature, trees follow the natural course of life: they are born, grow and then they die because they got old or because they were eliminated due to the competition with other trees or due to damages caused by insects, fungi, mammals, wind, snow, fire, etc. This way they hand over the growing space to other trees to install and to perpetuate the forest as an ecosystem. The dead trees slowly decay and re-enter the matter cycle ensuring the continuity of the ecosystem. In this slow decomposing process they serve as habitat for different organisms and they can even serve as support for the installation of seedlings produced by neighboring trees. The wood rot is produced by fungi. Some of them install only on dead trees while others attack live trees as well. The most common fungi species in our forests are:



The conifers' stump rot



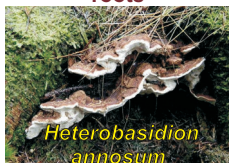
Fomes marginatus

The honey mushrooms



Armillaria mellea

The red rot of conifer roots



Heterobasidion annosum

The conifers' knob rot

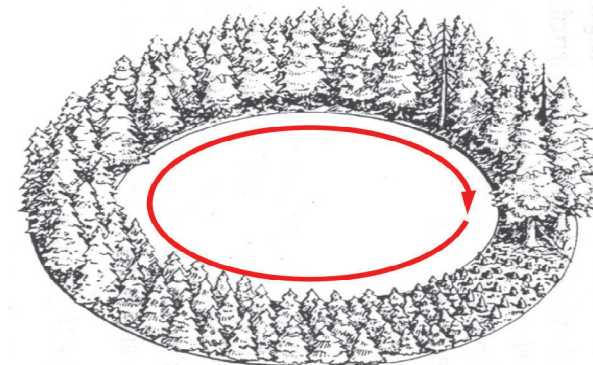


Phellinus pini

Remember: the dead wood is an important and necessary link in the dynamics of natural ecosystems!

Point 5. The young forest is also a forest!

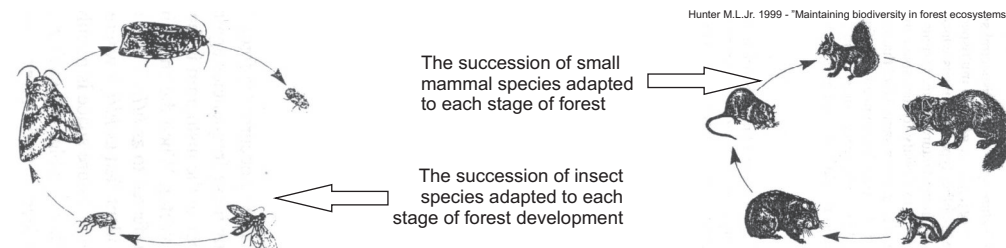
The aim of forest management is to perpetuate the forest ecosystem by installing a new generation of trees, growing them and then regenerating a new forest (= **extract the mature generation in the same time with installing a young one**). Here, we can see two neighboring generations: a mature forest and a new installed one. **The mature stand** represents the ending stage in the evolution of the forest. As the old trees die the sun reaches down to the young trees that spread their fragile crowns and take advantage of any chance to rise up. **The young generation** is a starting point in the life of a new forest. The crowns of the neighboring trees connect to each other and create that shady environment, specific only to the forest. Here on Secii Valley, the forest administration successfully made the transition to a new mixed forest, identical to the former old one. This picture presents the cyclic evolution in the forests' life.



Remember: the forest, same as human beings, is born, grows, gets old and then dies leaving the place to a young one. As children are also humans, the young forest is also a forest!

Point 6. Diversity of structures - optimum conditions for the biological diversity

Forests are dynamic natural systems and therefore, each stage of their lives, from establishment to regeneration, has its own species composition.



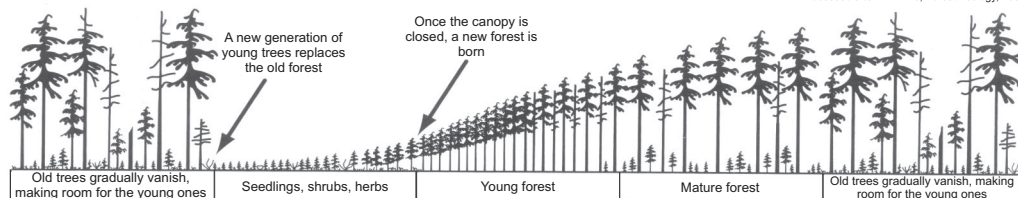
Furthermore, it should be known that many species, to satisfy all their needs (food, shelter, reproduction, raising of offspring etc.), need different structures of the forest. A good example for this place is the red deer that uses the meadows on Saca Mountain, the glades and freshly regenerated forests for food and during mating, the young forest to hide from predators and the mature forests for thermal protection. On the other hand, there are also species adapted to only one structure such as the woodpecker which prefers the mature forests with big old trees.

Remember: a mosaic of forests in different phases of development provides structures and compositions containing the species specific to all stages of succession.

Point 7. The generation exchange in the forests dynamics

Trees, like all other organisms, are born, grow, get old, give birth to others and then die. This evolution of each individual is a law of nature, unchanged and valid for all living creatures, including the forest as community of trees.

Processed after Kimmins, Forest Ecology, 2004



Here we can notice two stages which follow each other in forest management:

- ⇒ Above the road, some of the old spruce trees from the previous generation were extracted and the new installed seedlings gradually take their place;
- ⇒ Below the road, after the installed seedlings proved to be strong enough to take-over the growing space, the old trees were removed. We now have a young forest which practically starts again the cycle described in the above picture.

Remember: the generation exchange is an inevitable step and a natural stage in the life of any ecosystem. Forest management mimics this evolution of the forest!

Point 8. The natural disturbance - key factor in the dynamics of natural ecosystems

The **biotic** and **abiotic** processes and factors are continuously shaping the forest. Here, we can notice the effects of a **biotic disturbance - the insect attack**. Everyone should know that the insect species producing these disturbances are always present in our forests. However, most of the time, the effects of their activity are hard to notice. They become visible when the population of such insects grows rapidly and affects many trees in the same time. In montane forests, the most common species damaging the tree leaves, is the Nun Moth (*Lymantria monacha*) which produces **defoliation** while is in the stage of caterpillar. Because it attacks healthy trees, it is considered a **primary pest**. The most common bark beetles are the European spruce bark beetle (*Ips typographus*) and the Six-spined spruce bark beetle (*Pityogenes chalcographus*). Both are causing damages between the bark and the wood of the trees. The first species prefers large size parts of the tree (i.e. the damage is produced on the trunk, under the crown) while the second one prefers thin parts (i.e. the damage is produced within the crown - it affects the tree top and branches). These bark beetles are considered **secondary pests** (= they attack weakened trees). However, in a case of an outbreak, they may attack also healthy trees (i.e. become **primary pests**).



Remember: these insect species and their effects are a normal presence in the forests dynamics!

Point 9. The mountain meadow - an endless green carpet under the sky

The mountain meadow from Saca Mountain is charming us each season of the year. In early spring, we can see the capercaillies eating the fresh grass springing through the melting snow or the wild boars digging for tasty bulbs. Later, in the summer, the shepherds bring here their flocks of sheep. Every day they wonder on the mountain paths with their sheep, continuing a tradition of ages inherited from their ancestors. At dawn, the surroundings vibrate of flute songs, jingling bells and dogs' barking. In the autumn, when the grass slowly turns yellow under the colder winds, the shepherds leave with their flocks and the mountain again belongs only to the wild. Now, the stags begin to gather for their mating ritual. In the cold mornings or at dusk, the valleys resound of the roars of the bulls with their impressive antlers. In the winter, everything is covered in white snow and the mountain is again wrapped in silence. The meadow sleeps under the thick blanket of snow waiting for the spring to come while the frozen forest raises its branches to the sky longing for the summer sun heat. The bear sleeps in its den waiting for the spring to come again.



Let's admire all these beauties offered each season by the meadow from Saca Mountain without disturbing them!

Point 10. The Narrow-leaved Narcissus glade from the Saca Mountain - a wonder of nature



Here in the Saca Mountain, at an altitude of approx. 1450 m, under the blue sky of the spring months, the Narrow-leaved Narcissus (*Narcissus angustifolius*) bloom one by one, like white spots on the fresh green grass of the mountain meadow. Slowly the entire meadow becomes white, looking like after a late snow falling unexpectedly over the mountain prepared for spring. The white carpet of Narcissus flowers is interrupted here and there by flowers of mountain avens, gentian, common grape hyacinth and spring crocus. Lots of insects start wandering around through the grass and in the air, enjoying the warmth of the sun they expected so much after a long and harsh winter. Running on the rocks and through the grasses, we can see the mountain lizard - a common presence in these places.

Let's stop and enjoy together the wonderful Narrow-leaved Narcissus bloomed in the meadow of Saca Mountain without picking the flowers and without leaving any waste behind!