



"PLANET EARTH WHERE?"  
project team of students called  
GSIA FETESTI science pioneers XIB

This site will keep all project-related activities ongoing, activities that impact the students' skills development to keep a clean environment for future generations

Made with the students a case study aimed at our country specific knowledge of biotopes  
Floors bioclimatic

Bioclimatic floor, is an area determined by altitude changes produced by relief (orographic factor), soil (edaphic factors) and climate (climatic factor). At a floor level prevailing bioclimatic a certain species of plant or plant some bands.

In general, climatic conditions from us, with increasing altitude, there is an obvious change phytocoenoses (biocoenosis formed plant populations), forming separate floors, the forest flora, but the grass is differentiated as can see in the picture below (more on bioclimatic floors).

The lines of demarcation between the floors of the vegetation, in reality, are not contiguous, but they present changes (discontinuities) due to zonal factors. Thus, there are many differences influenced by local climate, the exhibition, the inclination of slopes, the soil features (slope, texture, structure, rock, etc..) Or by human activities (afforestation, deforestation, agricultural crops, soil and subsoil resources exploitation, etc..). Also, in some mountain areas, there are frequent thermal inversion phenomena, which means that the average temperature is higher floors higher than at the lower levels. As a result of all these special conditions, floors bioclimatic vegetation may be altered in some regions, although there may be a trend reversal in its vertical distribution. For example, in the mountains tail, are common

situations in which oak (*Quercus petraea*) rises far above normal altitudinal limit, can be found at higher elevations de1200 meters, while beech (*Fagus sylvatica*), species characteristic of Hardwood highest regions, often down to below 300 meters altitude.

### Steppe zone

Romania steppe zone includes a large part of Dobrogea, eastern and south-eastern Moldova Wallachia. In these regions, soils formed under grass vegetation, trees, naturally being rare or absent altogether. In some places, there are small shrubs, often spiny and totally isolated in the field, one tree may be the richest crown.

In the steppe zone, the landscape is flat or slightly inclined, there is little rain and summer heat is scorching. In the absence of natural obstacles, the wind is intense, further contributing to the phenomenon of drought. Austerity steppe is complemented by ground water level, which is deep, plant access to such a source, is practically impossible.

Plants inhabiting the steppe region, called xerophyte, experienced special adaptations so they managed to survive, grow and multiply in these very hostile environments. Thus, the underground parts of steppe species, have a profound development, or have water-saving methods, such as the emergence of an underground bulb. The leaves have little or narrow blade, often they become waxy or hairy surface, so that evaporation is the smallest. Also, many plants have developed during their development, means of defense against herbivorous animals, externalized by the presence of spiny bodies.

Among dicotyledonous herbaceous plants specific to the wild steppes of us, remember: thistle (*Carduus nutans*), thistle (*Cirsium arvense*), cholera (*Xanthium spinosum*) than flax (*Linum hirsutum*), cosacii (*Astragalus Cicer*) zăvăcusta (*Astragalus excapus*) peony (*Paeonia tenuifolia*), stânjeneii steppe (*Iris pumilla*). Besides these, many species of grasses grow, as: obsiga (*Bromus inermis*), denial (*Stipa capillata*) colilia (*Stipa pennata*, *Stipa lessingiana*, *Stipa pulcherrima*), timothy (*Phleum pratense*), men (*Andropogon ischaemum*), fescue (*pseudovina Festuca*, *Festuca vaginal* *vallensiaca Festuca*) firiceaua (*Poa bulbosa*), mouse barley (*Hordeum murinium*).

Shrubs that grow in the steppe and semiarbuști, forming thickets, often spiny. Meet species as: blackberry bush (*Rubus* sp.) Dwarf almond (*Prunus tenella*), wood grain (*Cytisus nigricans*) rabbit bone (*Ononis spinosa*), jasmine (*Jasminum fruticans*). A thorny shrub, with a high environmental plasticity encountered in the steppe, steppe and deciduous forests in all of us, rising from the plains to the mountains, is hawthorn (*Crataegus monogyna*).



Steppe vegetation

Specific area of wild plants of the steppe zone is relatively small, the largest area of land being occupied. Steppe is an area which by definition is devoid of trees, under current climate change is the most exposed to the phenomenon of desertification. This danger, however, lurks and large areas of steppe zone, as are the sandy regions of Oltenia, south of the Romanian Plain strip - which stretches along the Danube and some regions of the Banat plain. Therefore, it requires quick action, the cheapest and effective of them being the establishment of tree belts or protection of forests.

The positive human intervention, especially on light soils (sandy) and degraded steppe regions, but also in the steppe, occurred in the past century, stands. This became possible only after acclimatization of imported wood species, very common in the flora of Romania today, namely, locust.

- Salcâmetele

Salcâmetele are made of locust trees (*Robinia pseudacacia*). Acacia plantations, which in Europe and November in some places, forming true forests today were established after 1852, bringing the species from the Americas, where he lives as a native weed.

Salcâmetele presents a very important ecological role, so that it fixes damaged and sandy soils and as a consequence of the fact that the cords form of protection in areas where natural barriers are missing. Thus, plantations of acacias, they manage to reduce the destructive consequences of extreme weather events. About Acacia, Professor Simionescu, wrote in 1939, in *Flora of Romania*: "Without exaggeration can be likened to that use, with some palm trees in the Pacific islands, without which people can live there, giving shade, food and building material. That's us and locust trees. Supports heat, drought, but not be overcome even by the cold winter. "

If in Romania tomorrow there will be no desert regions, this is certainly attributable to locust. On the sands of Oltenia, where desertification has its best conditions, acacia plantations are the only solution. Positive results of afforestation with acacias, already seen in abundance in the Craiova - Bechet - Boat, where after 10 years of effort, 3,000 hectares of desert have green

## Acacia Forest Steppe zone



Even if today most areas of the plains and the hilly regions of low, herbaceous vegetation is predominantly present, specific soils of these areas (except steppe zones) were formed under deciduous forests, which occupy huge expanses ago, several centuries. Today, agricultural land in these regions predominates here and there are remnants of the old meeting forests, remind us that we are in the forest steppe zone. Forest-steppe in our country, occupies the center and west of the Romanian Plain, the highest hill in Dobrogea Plateau of Transylvania and Banat regions Cri plain and left most of the Siret Moldova.

Steppe regions of the new open space is relatively dry and warm, have a similar herbaceous vegetation found in the steppe. In some regions, increasing average temperatures, coupled with decreasing rainfall, the differences between the steppe and the forest were cleared, planând same distress, conversion of large areas in the desert.

Forest floor in lowland and lower and middle hills region

Steppe zone is continuous low altitude forest floor, where the predominant and characteristic woody vegetation consists of species belonging to the genus *Quercus*, called cvercete forming forests. In the past, trees belonging to the botanical genus were widespread in woody flora of Romania, but with the expansion of agricultural land, a growing number of large specimens, fell under the blows of axes. Now, as to drain the centuries, we can see very well the negative consequences of massive deforestation in the past, the processes of erosion, droughts and violent storms, making agriculture a game of chance. Low altitude forest massacre led to the spread of negative repercussions on downstream areas, regions previously known for their high productivity, as Baragan.

In forest areas of low plains and hilly regions, appear as the dominant forest species, oak (*Quercus robur*), pubescent oak (*Quercus pubescens*) and gray oak

(*Quercus pedunculiflora*). These species form called stejărete forests. Slightly upwards in elevation, oak mixed with oak (*Quercus petraea*), which becomes woody species dominated the middle hill regions, where they form known as sessile oak woods. Gorunetele Stejăretele and can be collected under cvercetele, wooded stretch of predominantly woody species belonging to the genus *Quercus*.

- Cvercetele

In cvercetele, oak forests (stejăretele) occupies the lowest areas (100-150 m altitude), while oak climbs up to 400-500 m altitude, where it appears mixed with beech (*Fagus sylvatica*). Sometimes cvercetele forward to 1250 m altitude of the south and particularly in the western Carpathians.

## Oak Forest

The plains and low hilly regions, with common oak (*Quercus robur*), the gray oak (*Quercus pedunculiflora*) and pubescent oak (*Quercus pubescens*) occur mainly in the south and west of the country, two species related, and accompanying higher oak forest areas. These are; flasks (*Quercus frainetto*) and sky (*Quercus cerris*). English oak (*Quercus robur*) forests that dominate the form, where soils have a high humidity. Other characteristic species of *Quercus stejăretelor*, have special claims on the abiotic factors, such as are found in dry regions. Accompanying streams, oak (*Quercus robur*) can be found in steppe and forest steppe region.

If the area is relatively mild stejăretelor permeable soils in the higher, the gorunetelor, they become heavy, clayey, less permeable. But just such conditions, coupled with an annual average temperature somewhat lower and more rain, favors two species of the genus *Quercus*, popularly known as oak, *Quercus petraea* and *Quercus ie dalechampii*, the latter being more rare in our .

All genus *Quercus* species grow on soils with enough humus, neutral or slightly acidic. The presence of these trees in lower areas, the soils of alkaline pH, is possible only by the presence of mold in soil similar to those that synthesize penicillin (*Penicillium* molds). These fungi, crowd around the roots of trees, forming a buffer living, amended soil reaction, it becomes favorable for the development of wood species. Cvercetele existence in many areas of steppe and steppe, is possible only due to this type of mycorrhiza.

Cvercetele are ecosystems, as a secondary species, develops a range of other trees and shrubs, such as: ash (*Fraxinus excelsior*), hornbeam (*Carpinus betulus*), field elm (*Ulmus foliaceae*), maple (*Acer campestre*), lime ( *Tilia tomentosa*), bird cherry (*Cerasus avium*), bloody (*Cornus sanguinea*).

In the forests of *Quercus*, is also developing and many herbaceous plants as: Romanian peony (*Paeonia pregrina* var. *Romanic*), green hellebore (*Helleborus odorus*) nemțșorii cracks (*Delphinium fissum*), dog's milk (*Euphorbia amygdaloides*) tâlhăreua (*Mycelis muralis* ) colțunii bucket (*Viola silvestris*), the fruit of the earth

(*Arum maculatum*), forest fescue (*Festuca sylvatica*, *Festuca heterophylla*), high fescue (*Festuca gigantea*), etc. ..

In front of stejăretelor region, there is a transitional vegetation, the flora xerofilă combine with the feature cvercetelor. The same happens in the upper gorunetelor, his characteristic beech forests are the presence of plant populations.