Plan:
• The concept of phytocenosis.
• Signs of phytocenosis.
• Classification of phytocenosis.
• Elements of Plant Geography
• Zoning
Literature:


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• Geobotany is the division of plant geography, which studies the vegetation cover of the earth, its composition, structure and distribution, depending on the environmental conditions.

• The objects of geobotanical study are not individual plants, but their groups living in certain ecological conditions, the so-called plant communities or phytocenoses.
• Plant communities or phytocenoses are not a random set of species, but are historically formed combinations of plants that are adapted to live together under certain environmental conditions.
Phytocenoses are diverse due to the variety of environmental conditions in the mountains there are some communities, in the desert, others, in swamps, along the river - the third, etc.

Plant communities are highly dependent on the environment and are themselves affected by it. These influences are diverse: plants extract water from the soil with dissolved mineral substances, while changing the moisture content and chemical composition of the soil. At the same time, the remains of dying plants or their parts, decomposing in the soil, enrich it with organic substances, change chemical and physical properties, etc.
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In addition to fighting for light, moisture, etc. plants can influence each other by changing the phytocoenotic environment, by isolating the products of vital activity (biolins) of various chemical substances. This is called allelopathy.
In plant communities usually species of plants coexist, presenting different requirements to the conditions of the external environment. So, under the canopy of the forest, the shade lovers are developing well. Among the thickets of amber, using deep groundwater, ephemerals settle, the roots of which are adapted to capture only surface moisture, etc. This is because between plants that have the same requirements for environmental factors, there is a lower competition than between plants that differ in their life properties.
As a result of a long historical period, species that are more adapted to coexistence are selected, which form the corresponding phytocenoses (meadow, forest, marsh, steppe, etc.).

Historically formed phytocenoses usually differ in significant resistance and after their disruption or destruction are restored.
• Signs of phytocenosis.
• Each vegetative community is characterized by certain signs. Among them is the species composition of the cenosis, which is determined by the number and proportion of plant species forming this community. The species composition of the cenosis can be very different depending on the specific conditions. Sometimes it includes dozens of species, sometimes a very small number. Cenoses consisting of only one species of plants are virtually absent.
Plants growing along the banks of rivers and water bodies. They form phytocenoses of hydrophilic type.
Some herbal plants of phytocenoses of hydrophilic type.
. Even such cenoses as, for example, "pure reed thickets" usually contain other species, not to mention numerous soil microorganisms.

A characteristic feature of cenoses is stratification. The essence of this phenomenon lies in the fact that in the communities usually takes part several species occupying different tiers. Both the height of the above-ground organs, and the depth of penetration of the root systems.
Вертикальная проекция первичного смешанного тропического леса с господством диpterокарповых (Dipterocarpaceae), гора Дьюлит, Калимантан (по Ричардсу)
Layering also occurs in the distribution of underground plant organs that live in communities. The number of tiers in the cenosis depends on many factors, but primarily on climatic and soil factors. The most complex multi-tiered communities are observed in tropical forests, where environmental conditions are particularly favorable. The simplest single-stage cenoses are observed sometimes in desert conditions or solonchaks.
The next sign of the cenosis is its appearance. The appearance of cenosis changes during the growing season, because the phase of development of various plants entering the community occurs at different times.
Вертикальная проекция (длина участка 90 см) на заповедной степи Аскания-Нова (по Вернандер): ассоциация Stipae — Festuca sulcata:
I — Stipa ucrainica, II — Cerastium ucrainicum, III — Pyrethrum millefoliatum, IV — Stipa capillata, V — Draba verna, VI — Festuca sulcata, VII — Stipa lessingiana
The appearance of the community in a certain period of vegetation of plants is called its aspect. During the growing season, depending on the nature of the community, several shifts in aspects may occur, which is usually associated with seasonal phases of plant development. The aspects of coloring of aspectal species are called. For example, the red-green aspect of the Roemeria, the greyish-yellow aspect of Carex sedge desert, etc.
• Some species are found in smaller quantities than dominants, but nevertheless play a significant role in the composition of cenoses. These are subdominants.

• Other species are rare in the plant communities, they are few in number and occupy a subordinate position in relation to the dominant ones. These are secondary or accompanying species.
Plant communities exist in a more or less constant composition as long as the surrounding environment does not undergo significant changes. If the ecological situation surrounding the phytocenosis changes significantly, then some communities change their communities.
Most often, the change in the vegetation cover occurs as a result of the impact of anthropogenic factor - human economic activity, cutting down forests, plowing up steppe, draining marsh, conducting irrigation works or grazing cattle. These anthropogenic impacts have the strongest impact on surrounding vegetation.
Classification of phytocenosis. The concept of a plant community does not have a systematic meaning, it only indicates the fact of the joint growth of different species. In order to understand the nature of the vegetation cover, composed of individual communities, there is their classification, which is used to describe

- the vegetation of a certain territory
Классификация растительных сообществ:
1. Растительная ассоциация
2. Растительная формация
3. Тип растительности
Тип растительности: лесная, кустарниковая, травянистая и др.
Формации: полынно-осоковая
Доминант субдоминант
Ассоциации: полынные, осоковые, эфемеровые
Similar plant communities that have the same composition of dominants and a similar composition of associated species are combined into so-called plant associations. The association is the main systematic unit in the classification of vegetation cover and is characterized primarily by a certain floristic composition of dominants and associated species, homogeneous habitats and a certain, well-defined appearance.
The number of plant species that make up the cenosis is not the same: some are more frequent and more numerous, others are less frequent and few. The most numerous species occupying the dominant position in the cenosis, dominant over the cover, are called dominant or dominant species.
Dominant determine the general background of phytocenosis and usually produce the greatest amount of organic mass. In each tier of phytocenosis. Dominants in the phytocenosis addition and play an exceptionally important environment-forming role. Therefore, they are referred to edificators - plants that form the basis of phytocenosis and play a major role in creating a phytocoenotic environment.
Plant associations that have the same dominant species, but differ in their attendant plants and live in slightly different soil conditions, are combined into the next geobotanical unit, the plant formation. For example: wormwood - sedge association and wormwood - bluegrass association, often found in the Adyr area of Uzbekistan, are united in one wormwood-ephemeral formation.
Vegetative formations that differ in terms of dominant species but refer to a single life form (biomorph) constitute the highest geobotanical unit—the type of vegetation. Examples of vegetation types are forest vegetation, shrubby or grassy. For example, in the forest type of vegetation that inhabits the mountains of Uzbekistan, formations of archeologists, maple trees, walnut forests, apple tree formations, etc. can be distinguished.
When describing the vegetation cover of any territory, two concepts are distinguished: vegetation and flora.

The term "vegetation" refers to the totality of all plant groups, communities of phytocenoses living in a particular territory. For example, "Vegetation of Uzbekistan", "Vegetation of sand deserts", "Vegetation of mountains", etc. In each case, there is a view of the totality of all associations, formations, types of vegetation inhabiting these territories.
The term "Flora" refers to the totality of all systematic units (species, genera, families) that live in a particular territory. Therefore, they say "Flora of Uzbekistan", "Flora of Tajikistan", Flora of Turkmenistan", etc. understanding by this term the totality of all species of plants living in these territories.
• The richest flora of the rainforest of Brazil is about 20,000 species, 13,000 species in equatorial Africa, 6,000 species in the mountains of Central Asia, and 600 species in the deserts of Central Asia. -300 species live even less in the desert Africa. The flora of the highest flowering plants of Uzbekistan has 4230 species.
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Areal of Hepatica nobilis Schred
Areal of Liriodendron L.
The sizes of the various areals vary. Sometimes it occupies huge areas of land, sometimes it is reduced to a very small area, only a few hectares.

The species inhabiting all continents of the globe are called cosmopolitans: they are few and often these are weeds: garden horticulture, nettle, medium plantain, dandelion medicinal, etc.
• However, there are species whose area occupies a very limited territory (Uzbekistan tulips, Uzbekistan carnation, ostegia Bukharica, smooth moraine, etc.)

• Such species, occupying a very limited area, are called endemic species or endemic
Areal of very rare plants of Uzbekistan flora

Cousinia Sprygini

Spirostegia bucharica
Some species, due to changes in the ecology, dramatically reduced the areas of their habitats and survived in some particularly favorable places of their range - relic species or relics.

Relics are plant species that have remained from the flora of earlier eras and survived to modern days. To the relict plants of the flora of Uzbekistan are walnut, sweet almonds, pomegranate, figs, persimmon, which in the Tertiary period were widely distributed, and today in the wild are found somewhere in the mountains.
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In Central Asia, a country of a very ancient culture, such species as archa, saxaul, pistachio, almonds, walnut and many others have significantly reduced their areals under the influence of anthropogenic factors.
Throughout such a vast territory as Russia, the climate, soil cover and vegetation are very diverse. The most significant changes in the soil and vegetation cover are observed as they move from north to south. Such a change of vegetation at certain latitudes was called zonality.
However, when climbing the mountains, there is also a fairly Latitudinal plant zones extend in the form of broad bands from west to east and each zone has a certain character of the vegetation cover. From the shores of the Arctic Ocean to the south the following vegetation zones are distinguished: tundra, forest, steppe, desert.
Zonal change of vegetation covers mainly flat areas and is caused by climate changes in the latitudinal direction. Sharp change in climatic factors, the higher the absolute altitude of the terrain appears, the more the climate becomes colder. For the mountains of Uzbekistan, it is considered that when the mountain rises for every 100 m, the air temperature drops by about 0.5 °C.
Climate change and soil cover as they rise from the foot of the mountains to their peaks entail a change in the nature of the vegetation: the more thermophilic species that live in the plains are gradually replaced by more cold-resistant and hygrophilous. These changes in the vegetation cover in the mountains are called vertical zoning. It is well pronounced in the mountains of Uzbekistan.
In addition to the zonal types of vegetation, so-called intrazonal vegetation also exists, which can be observed in various natural zones. Intrazonal vegetation includes: bogs, solonchaks, meadows, etc.
QUESTIONS FOR SELF-CONTROL:
• What is phytocenosis?
• What signs of phytocenosis do you know?
• What does geobotany study?
• What is the aspect of phytocenosis?
• Give examples of dominant species?
• What is a plant association, formation and type of vegetation?

THANK YOU FOR ATTENTION