

MODERN CONCEPTS OF ECOSYSTEM SERVICES IN FOREST SOILS

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Annotation: *Forests are one of the most important biomes in the world, both in terms of area, the goods and services they provide, and the biodiversity they contain (approximately 90% of terrestrial biodiversity). There is a special specificity of the interactions of these components and a certain type of exchange of matter and energy between them and the environment.*

Key words: *Forest, Ecosystem service, Introduction*

The forest preserves both homogeneous and diverse natural components (vegetation, microorganisms, atmosphere, bedrock, soil, and hydrological conditions). It is also the most important factor in maintaining (preserving) the genetic diversity of biosphere, including climate-regulating, increase soil fertility, regulate and purify water runoff, preventing or mitigating the negative effects of adverse climate change and are one of the main elements of the recreational potential of phytocenosis. Thus, forests and its surrounding are an important source of ecosystem services and are essential to planetary life support systems [1]. Biogeochemical cycles, such as the movement of the element carbon through the living and physical environment, are truly global and penetrate too deep into soils from the upper atmosphere [5].

Result and Discussion. Forest soils are an integral component of all terrestrial ecological systems (biogeocenoses) and perform various and unique ecosystem services that ensure the cyclic reproduction of plants and microorganisms, of a particular importance is the water-protective, soil-protective and climate-regulating role of forests (Table 1). According to academician G.V. Dobrovolsky, the further they develop their knowledge about soils, the wider the horizons of the significance of soils in the biosphere. Forest soil represent actual life support functions & ecosystem services such as cleaning, recycling, and renewal, and bring many intangible aesthetic and recreational benefits to the living forest [3]. Forest soils play a vital role in determining the sustainable productivity of forest ecosystems and their resilience. Therefore, forest lands with good physical and chemical characteristics are necessary to maintain the productivity of terrestrial ecosystems and stimulate processes that maintain environmental quality. It is the basis for the growth of trees and other vegetation and is one of the most important components. Forest soils filter water coming from fields and industrial sites and purify it from many harmful impurities [1]. The ecosystem services of forest soils associated with their physical properties are determined primarily by the special structure of the living space in which

microorganisms live and the root system of plants functions. These soil services, due to their chemical and physico-chemical properties, provide the absorbing capacity of soils and the mineralization of organic residues, resynthesis of mineral and organic substances (humus), and the return of nutrients in an accessible form to plant roots [4].

Table 1. Ecosystem services in forest soils (Reid, 2005; Lee, 2009; Turkelboom et al.,2013)

Provision	Supportive	Regulation	Culturally
Fresh water (water provision) Source of Different resources Habitat for microorganism Maintaining of biodiversity	Soil layer formation and erosion prevention (protection) Nutrient cycling in the atmosphere & plants. Primary production Ecosystem maintenance & resilience Soil structure and fertility	Climate and atmosphere regulation Carbon storage (climate control and carbon sequestration) Regulation of greenhouse gas flows Regulation of energy flows between the Earth's surface and atmosphere, reduction in wind strength and damage to vegetation from hurricanes and storms, regulation of moisture flows between the surface and atmosphere Air purification by vegetation (pollutant absorption and dust precipitation) Hydrosphere regulation Water protection and water regulation Assurance of water quality by terrestrial ecosystems water regulation (water purification). Assimilation of pollution and waste	Aesthetic Spiritual Knowledge and education systems Recreational (leisure and ecotourism) Inspirational, etc.

Conclusion. Ecosystem services in forest soils are very diverse: Production of biomass by converting the energy of some light and nutrients into biotic products, production of oxygen, maintenance of biodiversity and sustainability of ecosystems, regulation of climate in terms of precipitation and temperature, maintenance of soil fertility, favorable processes of soil formation and stabilization, Ensuring sufficient retention of organic nutrients, maintaining soil structure and its porosity, providing cultural, intellectual, scientific, methodological, spiritual and artistic values are the main ecosystem services of forest soil [5].

Referance

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