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Brief description of the distribution of Scots pine in natural and cultural populations

Scots pine is the most common coniferous species in our country. In the wild, it grows on small hills of Kazakhstan and Altai Mountains, on plains, in forests and steppes, on sands and dry soils. In other parts of the country, it is grown for planting in its natural habitat to protect against natural disasters [1].

Scots pine has a wide range of phenotypic and genetic variability, which allows it to occupy a huge range in the northern part of Eurasia.Separate populations of the species are closely adapted to local soil and climatic conditions and form larger and more stable intraspecific taxa - climatic ecotypes (climatypes) the basis for the organization of forest seed economy [2].

Scotch pine in Kazakhstan is one of the main forest-forming species and grows mainly in four regions: in the region of the Kalbinsky ridge in the East Kazakhstan region (34.9 thousand hectares), on the Irtysh plain in Pavlodar and Semipalatinsk regions (478.2 thousand hectares). ha), in the area of the Kazakh Upland in Kokchetav, Tselinograd, Karaganda and Pavlodar regions (226.6 thousand hectares). A small area of pine forests is also found in the North Kazakhstan, Kostanay and Dzhezkazgan regions, in the Zaysan and Leninogorsk basins of the East Kazakhstan region [2].

Pine from Karaganda, North Kazakhstan, Pavlodar, East Kazakhstan, Tselinograd regions grows here at the level of local populations or even exceeds the growth rates of local pine [2].

Scotch pine due to its unique combination of universal economic value, productivity, prevalence and an unusually wide ecological rate of reaction is rightly called the most valuable tree species in the world [3].

Scots pine is extremely plastic and occupies the widest range of ecological niches of forest species, it is able to settle on substrates that are extremely depleted and contrasting in moisture - from rocks and dry sands to sphagnum bogs, where it does not meet competition from other species. Being undemanding to soil conditions, being a "double xerophyte", possessing frost resistance and the ability to quickly settle, it perfectly copes with the role of a "pioneer" in areas devoid of vegetation, and at the same time acts as a forest-forming plant, occupying mainly sandy and sandy soil [4].

The plant belongs to the genus Pinus, known by other names related to the geographical location in which it grows. Scots pine has the following structure: root system, trunk, needles in the form of thin needles and branches. In fact, the lifespan of pine trees is much longer! In protected areas there are specimens that live up to 300 years [5].

The total potential of trees will last up to 600 years of life. Cedar varieties of pines live up to 1000 years, and some species - up to 5000. Today, there are single trees, the age of which is approaching 5 centuries. Such centenarians are found only in places inaccessible to people - on mountain slopes and in dense thickets. Pine trees have found their way into landscape design as an element to strengthen the soil during erosion, which is why they are planted on slopes. The tree perfectly greens flat areas; it is planted in the territories of medical and rehabilitation institutions. In the cities, pine is practically not found, it is not planted due to the disturbance of photosynthetic processes, but on the elite country estates, pines are actively grown [5]. The pine tree grows very quickly, especially in the first 100 years. The height of the pine trunk varies from 35 meters to 75 meters, and the trunk diameter can reach 4 meters. On swampy soils and under unfavorable growing conditions, the height of age-old trees does not exceed 100 cm.

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