*ECOSYSTEMS: ECOLOGY AND DYNAMICS, 2019, Vol. 3, No. 4, Pp. 5-23*

**METHODS OF SUSTENANCE AND RESERVATION OF ECOSYSTEMS AND THEIR COMPONENTS**

*UDC 630:631:6*

# FOREST RECLAMATION EXPERIENCE IN SANDY MASSIFS ECOSYSTEMS OF THE TEREK-KUMA INTERFLUVE

**© 2019. G.A. Surkhaev*, I.G. Surkhaev*, K.N. Kulik**, G.P. Starodubtseva*****

**North Caucasus Branch of the Federal Research Center for Agroecology, Complex Melioration and Protective Afforestation of the Russian Academy of Sciences*
*Russia, 356890, Achikulak, Proletarskaya str., 10. E-mail: achikylak356890@mail.ru*
*** Federal Research Center for Agroecology, Complex Reclamation and Protective Afforestation of the Russian Academy of Sciences*
*Russia, 400062, Volgograd, Universitetsky Av., 97. E-mail: kulikkn@yandex.ru*
****Stavropol State Agrarian University*
*Russia, 355017, Stavropol, Zootekhnichesky Per., 12. E-mail: sgp_starodubtseva@mail.ru*

Received August 09, 2019. Revised September 02, 2019. Accepted October 01, 2019.

Terek-Kuma Sands are mainly ancient alluvial quaternary deposits, occupying about 800 thousand hectares within the boundaries of the Terek and Kuma rivers interfluve in the western arid part of the Caspian Lowland. The afforestation of this territory was started in the late XIX century (1894-1895) in order to stabilize open sands and restore degraded pastures of the region for the livestock production.
For more than a century the sand melioration in this territory shows high efficiency of a wide range (more than 100 species of trees and shrubs) tree cultures usage in the formation of different protective plantings (narrowband, curtains, clumps, solid) for agricultural (pastures, gardens, vineyards, planted herbs, melons species and other rain crops cultivation) and forestry (timber plantation, fruit and plucking plantations of commercially valuable crops) development of "waste lands", i.e. the arid sands of the region.

According to some studies, on a large part of this interfluve territory (about 70% of it) sands have a fairly significant (0.2-1.0%) humus percentage and relatively high (25-40%) content of easily digestible minerals (feldspars, apatites, micas, amosites etc.), which enrich the soil with ash nutrition elements.

However, some salinity of sandy soils and lack of moisture are limiting factors for the normal growth and longevity of trees and shrubs due to the density of ground waters in the capillary fringe and water balance disturbance of trees under ontogenesis.

We found out that growth and longevity of tree-shrub phytocenosis on the Terek-Kuma sands depended on the degree of availability of additional source of soil moisture, such as ground water, aside from precipitation; and its share in the water balance should be at least 50-70%.

*Keywords*: Terek-Kuma sands, forest reclamation, afforestation, protective plantations, forest cultures, Bazhigansky Array, arid region, *Robinia leachate*, summer oak, sand stabilization, desertification, sand melioration.

**DOI: 10.24411/ 2542-2006-2019-10043**