

## **A problem of the study and regeneration of small rivers on Tatarstan territory**

Kurbanova S., Prokhorenko N.

*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

---

### **Abstract**

© SGEM2017 All Right Reserved. The numerous cases of the upper headwaters drying are observed in the plains of the Middle Volga region. The reasons of the streamflow change pertain to the reduction of forest vegetation and the change of its species composition. More than 1000 cartographic materials for more than 200 years, as well as aerial and satellite imagery were used during the research of forest vegetation breadth. Currently, the forest and the forest-field landscapes prevail in the north of Tatarstan, where coniferous-deciduous forests are widespread. The forest-fields, as well as the field landscapes are common in the west and south of Tatarstan, where deciduous forests and forest-steppe are prevalent. In the field landscapes the water runoff in the flood time increases to 65% of the total annual runoff, while the monthly summer runoff of low water reduces by 2.5 times compared to forest landscapes. The studies have shown that over the past about 140 years the quantity of the first-order watercourses has reduced by 1.5 times in the area of mixed forests, whilst in the forest-steppe zone the quantity of the first-order watercourses has decreased by nearly 2.7 times. At the same time woodland in different regions of Tatarstan has decreased by 1.6-2.8 times for the same period of time. Low of the forest cover (17.9%), as well as the species composition of forests, in which the coniferous species as the most valuable for the infiltration does not exceed 24% from the forest area, are characterized for of Tatarstan territory. Coniferous plantations by more than half are presented the unstable monocultures of pine.

<http://dx.doi.org/10.5593/sgem2017/52/S20.002>

---

### **Keywords**

Anthropogenic development of the territory, Degradation of rivers, Infiltration, Species and age composition of forests, The small rivers and their order

### **References**

- [1] Mozherin V.I., Kurbanova S.G. Human activity in channel erosion systems of the Mid Volga area. Kazan, 2004. 128 p.
- [2] Šach F., Švihla V., Černohous V., Kantor P. Management of mountain forests in the hydrology of a landscape, the Czech Republic/ J. Forest Science, 2014. V. 60, pp. 42-50.
- [3] Štekauerova V., Nagy V., Kotorova D. Soil water regime of agricultural field and forest ecosystem/ Biology, 2006. V. 61, Issue 19, pp. 300-304.

- [4] Tsvetkov M.A. Changes in forest area in European Russia from the end of XVII century up to 1914. Moscow, 1957, 213 p.
- [5] Philosophov V.P. On the importance of the orders of valleys and watershed lines in geological and geographical researches/ Questions on morphometry. Issue 2. Saratov, 1967, pp. 4-67.
- [6] Berlyant A.M. Cartography. Moscow, 2011, 447 p.
- [7] Kurbanova, S.G., Denmukhametov, R.R., Sharifullin, A.N. Assessment of speed of the recent floodplain alluvium accumulation in basins of minor rivers of the East of the Russian plain/ Life Science Journal, 2014. Volume 11, Issue 11, Articlenumber 82, pp. 480-483.
- [8] Sharifullin A.N., Mozherin V.I., Mozherin V.V., Dvinskih A.P., Kurbanova, S.G., Denmukhametov, R.R. Assessment of the value of underground feeding of rivers and spring runoff in Rapublic of Tatarstan/ Scientific notes of Kazan University. Natural science, 2008. Vol. 150, Iss. 4. pp. 67-76.
- [9] Materials of hydrometeorological observations in field and forest paired catchments. Vol. III. Part. III, IV. Leningrad, 1982, 218 p., 138 p.
- [10] Safronova I.N., Yourkovskaya I.N. Zonal patterns of plains vegetation cover in European Russia and its map display/ Botanical Journal, 2015. Book. 100. № 11. PP. 1121-1141.
- [11] Glushko S.G., Prokhorenko N.B. Subformational composition of sub-taiga forests in Russia/ Bulletin of the Kazan State Agrarian University, 2012. № 4(26). pp. 93-96.
- [12] Loskutov C.P., Shapchenkova V.A., Vedrova E.F., Aniskina A.A., Mukhortova L.V. The hygrosopic features of the coniferous and deciduous forests floor in the Mid Siberia Area// The Siberian Ecological Magazine, 2013. V.20 (5). pp. 695-702.
- [13] Ivanov L.A., Silina A.A., Zhmur D.G., Tsel'niker Yu.L. On definition of transpiration expenditure of forest tree stratum/ Botanical Journal, 1951.V.36. №1. pp. 5-20.
- [14] Kurbanova S.G., Prokhorenko N.B. The Role of Vegetation in Conservation of Small Rivers in the Middle Volga/ Mediterranean Journal of Social Sciences, 2015. Vol 6 No 1 S3. P. 242-246.
- [15] Basics of forest biogeocenology/ edited by V.N. Sukachev, N.V. Dylis. Moscow, 1964. 574p.